49th Year
No. 6

June, 1909

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AMERICAN BEE JOURNAL

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(See page 198.)

Home Apiary of V. Asprea, not injured by fall of house near-by.

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American Bee Journal

THE AMERICAN BEE JOURNAL

PUBLISHED MONTHLY BY

GEORGE W. YORK & COMPANY

118 W. Jackson Blvd., Chicago, Ill.

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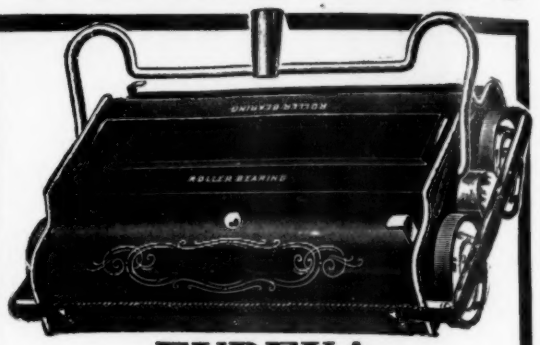

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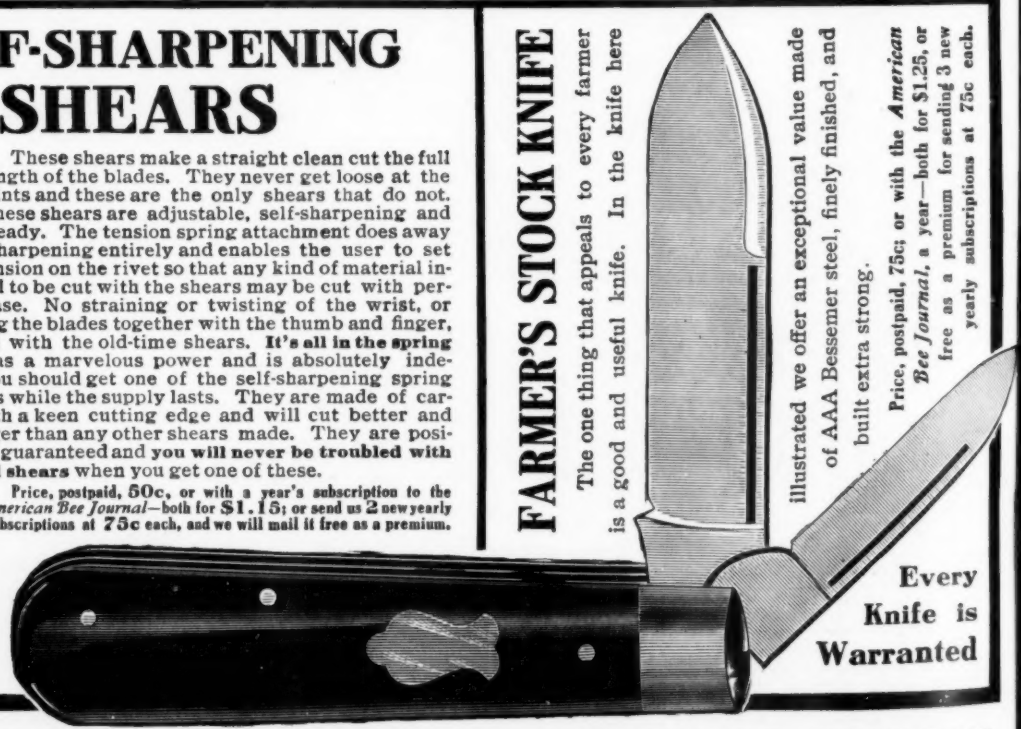

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AMERICAN BEE JOURNAL

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GEORGE W. YORK, Editor | CHICAGO, ILL., JUNE, 1909 | Vol. XLIX—No. 6

Editorial Notes and Comments

Shipping-Cases of Corrugated Paper

On another page Mr. J. E. Crane gives particulars and illustrations of a shipping-case that he has been using with great satisfaction for 3 years. It is said to be lighter, stronger, and cheaper than a wooden case. One hesitates to believe that it is stronger than a wooden case, but it bears the weight of a man standing on it, which a wooden case would hardly do. However, it is not so hard to understand its greater strength when its construction is understood. It is the upright partitions in the case that give such strength as to allow a man to stand with his full weight on a case.

Still more important is the fact that the construction practically makes the sections several times stronger. That is, the sections in one of these cases will come unharmed out of a tumble which would ruin them in the ordinary case. A wooden case filled with combs fell 18 inches, and every comb but 2 was broken. A paper case fell nearly 3 feet, and not a comb was broken. That is explained by the fact that each section has a separate compartment, and is surrounded on all sides by a cushioned wall.

Dr. C. C. Miller received one of these paper cases, and sums up the arguments for and against it in a Stray Straw:

> That Crane shipping-case of paper—doesn't look so pretty as the old case. You can't make as fine a show with such cases piled up as you can with wood-and-glass cases. In making a big pile, or loading a car, it is not quite so easily handled, and won't pack quite so smoothly; will take more time to fill sections into the little compartments. After a case is filled it will take longer to tie up than to tack on a wooden cover. Those are the objections that seem possible. No other objection occurs. On the other hand, we have "a lighter, stronger, cheaper case." Then the item of safety. That is a big item; for those who have not been able to ship without much breakage, an immense item. A single case or any number of cases may be shipped without fastening in a car, and without the heavy expense of carriers. Some may pack a carload of the old kind so as to travel in safety. Even then, it must be handled in smaller lots when it comes into the hands of the jobber, and then the greater safety of the paper comes into play.

We have examined a sample case, and, judging from the extensive experience we have had in shipping comb honey, we think the new Crane shipping-case is all right. It is very strong, light in weight, and certainly should answer every purpose for which it is intended. We hope bee-keepers will give it a thorough trial, as we are sure they will like it very much.

Laying-Worker Colonies

It happens only too often at this time of year that a colony will be found with no brood except drone-brood. There may be a drone-laying queen, or there may be laying workers. In either case the probability is that most of the bees present are too old to be of much value, and the experienced bee-keeper will generally think that the most profitable thing he can do is to break up the colony unceremoniously, distributing to other colonies the combs with adhering bees. At a time when bees are gathering, these will be kindly received anywhere.

But it is hard to make the beginner feel that there is any gain in having one less hive with bees in. If he has 6 colonies, one of them infested with laying workers, the breaking up of that one colony will leave him the possessor of only 5 colonies. Such a thought is not to be endured. He says, "It's a very simple thing to give that colony a frame of brood from another colony, and it will rear a queen.

If you, gentle reader, happen to be that beginner, it may be worth while to say to you that a colony that has been queenless for a considerable length of time is not in the best condition to rear a good queen, if indeed it rears one at all. But you will not be persuaded. You'd rather have a poor queen than none at all. You, who are the proud possessor of 6 colonies, have no notion of being reduced to the ranks of those who possess only 5 colonies each. Perish the thought!

Well, if you will not be persuaded to break up the colony, at least you can make your chances a little better—a good deal better. Swap brood and bees with other colonies. Go to a good colony, take from it a frame or two of brood with adhering bees—be careful you don't take the queen—and give this colony a like number of combs with adhering bees from the faulty colony. Do this until you have disposed of all the contents of the hive containing the queenless colony, putting into said hive the good brood and bees you have taken from the other colonies. Now you have in this hive a stock of young bees with an outfit of brood in all stages, and if the colony is strong enough, and if honey is yielding well, a good queen may be reared. Of course it will hasten matters if a sealed queen-cell is given to the colony. Still better, if you can give a laying queen. Some of the field-bees will return to this hive, and that will be a good thing.

Abundant Ventilation

Never was there a time when so much importance was paid as to the importance of plenty of good air for man and bee. It is easy to have a deep space under bottom-bars in winter; but in summer the bees may build down combs. J. P. Blunk, in Gleanings, overcomes this difficulty by having an opening at the back as well as at the front of the bottom-board and with this chance for a passage clear

American Bee Journal

through, he says there is no building down.

On the same page, Dr. C. C. Miller, while commending the plan, points out that it is better suited for hives standing singly than for those standing in groups of 4. In the latter case there is likely to be some mixing of bees. But can any great harm come from mixing? He says that at one time he had his hives raised by means of a block at each corner. There was no building down, but it was unpleasant to work sitting beside such a hive, as the bees would come out at the side and sting his legs. But why didn't he set a board against the side of the hive while sitting there?

If there can be an abundant opening without having the bees build down-it ought to be quite a factor in preventing swarming.

Destroying Queen-Cells and Swarming

Sometimes the beginner thinks he is pretty much master of the situation because he can take out the combs of a colony and kill all queen-cells that have been started. He reasons: "Bees always start queen-cells before swarming, and the first swarm issues when the first cell is sealed, or about 8 days after the egg is laid in the cell. So if I kill all cells once every 8 days, there will be no chance for a swarm to issue. Good scheme, and easy."

But it is not so good as he thinks. In one case it may be that when the cells are killed once, there may be no further attempt at swarming. But in another case there may be cells started again within a day or so. If these are again killed, it only seems to make the bees more determined, and finally the bees may conclude to swarm with queen-cells only slightly advanced, or indeed with none started at all. It may as well be fully understood that destruction of queen-cells is not to be depended on as a preventive of swarming.

The exception to this is in the case of afterswarms. When the prime swarm issues, the old queen goes with it, and under ordinary circumstances a second swarm may issue about 8 days later. If, however, a day or two before this time all queen-cells but one are killed, there will be no more swarming.

That sounds easy; and yet the experienced bee-keeper is not likely to practice nor to advise killing queen-cells to prevent afterswarms. There is an easier and better way. It has been given a number of times in these columns. When the prime, or first, swarm issues, set the hive containing the swarm on the old stand and set the old hive close beside it. A week later move the old hive to a new stand 10 feet or more distant. That's all; the bees will do the rest. No need to open the hive at all. Moving it that short distance is easier than to open the hive and hunt the cells. Besides that, it is surer. You may miss a cell; the bees will not.

Some beginner may say, "I think I'll make the matter still easier by setting the old hive at once at a distance where it is finally to remain." That may be easier, but by no means so sure. For if set at once where it is finally to remain, the old colony will during the next 7 or 8 days have a large number of young bees emerging from their cells and will feel fully competent to send out another swarm.

The case is utterly different if the old hive be placed beside the swarm and not moved to a new place for a week. When then moved, all the field-bees will, upon return from foraging, go straight to the old place and join the swarm. This will greatly deplete the mother colony. Not only that, for a day or so nothing will be brought into the hive from the fields. Even if there were no depletion in numbers, this sudden dearth coming suddenly upon them would be enough to drive out all thought of swarming.

Don't think of depending on the killing of cells to prevent either prime swarms or afterswarms.

Getting Many Queen-Cells

A new way of getting queen-cells in quantity is given by Hans Pechaczek, *Bienen-Vater*, 247. Let the best queen fill a frame with eggs. When the oldest larvæ are a day old, cut the cells into strips somewhat Alley fashion, only don't cut through the septum. With a narrow chisel scrape away between the strips, making sure to leave no eggs or larvæ. Destroy eggs or larva in every alternate cell in each strip. Put this frame flatwise over a strong colony having no queen or open brood. Let it be raised just enough above the top-bars so that there shall be room to build down queen-cells, not allowing the bees to get at the upperside of comb.—Stray Straw in Gleanings.

The question may be raised whether the quality of the product will be all right if the quantity be as great as one might suppose with the foregoing plan. It has been claimed that not more than 10 to 12 cells should be produced at one time if they are to be good. It is doubtful, however, whether we have any very positive knowledge on this point, although it is very desirable that we should have. Some colonies, notably Cyprians, start 50 cells or more at a time, and so far as reported they are as good as in cases where only 5 or 10 are started. Naturally, one would suppose that instinct would hardly lead the bees astray. Moreover, at the time when bees are preparing to swarm there is a great falling off in the laying of the queen, and consequently a smaller number of worker-larvæ to be fed. That, surely, ought to leave an abundance of extra food for the royal youngsters.

When a colony is made queenless, there is an entire cessation of egg-laying. That will make no difference in the number of mouths to feed until the end of about 3 days. Then, supposing the queen had been laying at the rate of 2,000 eggs a day, there will be a daily falling off of 2,000 boarders. That ought to leave a pretty good chance for a big lot of queen-cells.

"But," asks some one, "how about that first 3 days when there is as yet no diminution in the number of the regular boarders?" Well, in the first 3 days we are told the food given to royal larvæ is the same as that given to worker-larvæ, and the probability is that in the first 3 days of its existence the quantity of food consumed by a royal larvæ does not differ much from that consumed by a worker-larvæ. To be sure, a royal larva is fed very lavishly, but it does not consume all it is fed.

The Iowa Bee-Inspector Law

It seems that the legislature of Iowa passed a Bee-Inspector bill a short time ago, but it carried with it no appropriation of funds. Consequently the Governor will make no appointment of inspector, there being no funds available for paying the expenses.

This looks very much af if the lawmakers of Iowa had handed the bee-keepers a gold-brick. It seems very strange that a bill should be passed that required funds in order to make it effective, and then no funds provided for such use. What's the matter with Iowa's law-makers? The bee-keepers there ought to get the business end of the bee after them!

Bee-Keeping and Italian Earthquake

On page 121 of the April American Bee Journal, we published something about Signor Vincenzo Asprea, an Italian queen-breeder, who lived near the scene of the great earthquake which occurred in December, 1908. Since that item was published we have received two pictures from Mr. Asprea, accompanied by the following letter:

MR. GEORGE W. YORK, CHICAGO—

DEAR SIR:—I thank you for the kind words in the American Bee Journal for April, 1909. I send you the photographs of my home and home apiary. As you can see, my home was half ruined by the earthquake of December 28, 1908. I am demolishing it, as it is uninhabitable. The ruins that can be noticed near the apiary belong to another house, and not a hive was injured by the fall. But I lost the bee-laboratory and some tools.

Unfortunately enough, my sister and brother-in-law were killed by the earthquake in Reggio. There were about 120,000 dead in Reggio and Messina. Yours truly,

VINCENT ASPREA.

Gallina, Calabria, Italy, May 11.

We were pleased to receive the pictures shown on the first page, which

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Signor Asprea so kindly sent to us. They are very interesting.

A Report from Austria

Mr. Alex. Schroeder, of Trieste, Austria, wrote us May 5, as follows:

DEAR MR. YORK:—I beg you to accept my best congratulations and good wishes for many more years to come in connection with the American Bee Journal. This is in response to your Twenty-fifth Anniversary editorial, in the April number.

I have been ill now for about 4 weeks, with a big anthrax that has weakened me materially, but now I can get up and walk about, and hope that within a week or so to be able to attend to my business again.

April was fine, but May up to this time has been cold and rainy.

With best wishes and greetings from Mrs. Schroeder and myself, I am,

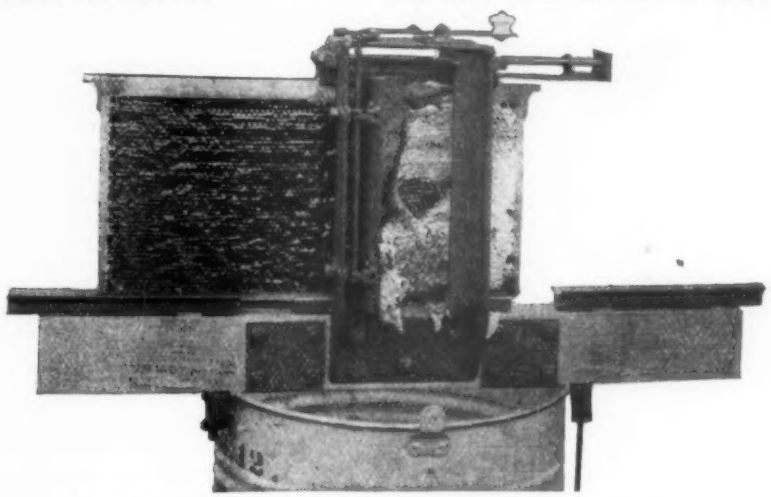
Yours faithfully
ALEX. SCHROEDER.

Our readers will remember that Mr. and Mrs. Schroeder made a short but very pleasant visit to the United States last year. We mentioned their call on us at the time.

Australian Honey

Everyone thinks his own baby prettiest. In the Northern States there is a general preference for white-clover honey. In California, nothing equals the flavor of sage honey. In Australia is to be found the delightful honey from the eucalyptus. Yet the London market will have none of this eucalyptus honey in spite of earnest efforts to introduce it there as a superior table honey. That bright Australian, R. Beuhne, after interviewing the leading markets of England, Germany, and America, thus sensibly sizes up the situation, in The Federal Independent Bee-keeper:

"Taking all these facts into consideration, it cannot be doubted any longer that the honey gathered from our eucalypts possesses a distinct flavor, not noticeable to Australians, who are used to it, but very evident to people in other countries. This flavor is not necessarily that of the essential oil of the eucalypt, and the term eucalyptus flavor does not imply more than a description of the characteristics of honey gathered from these trees."



NO. 1—FERGUSON UNCAPPING MACHINE IN ACTUAL OPERATION.

Death of William Russell

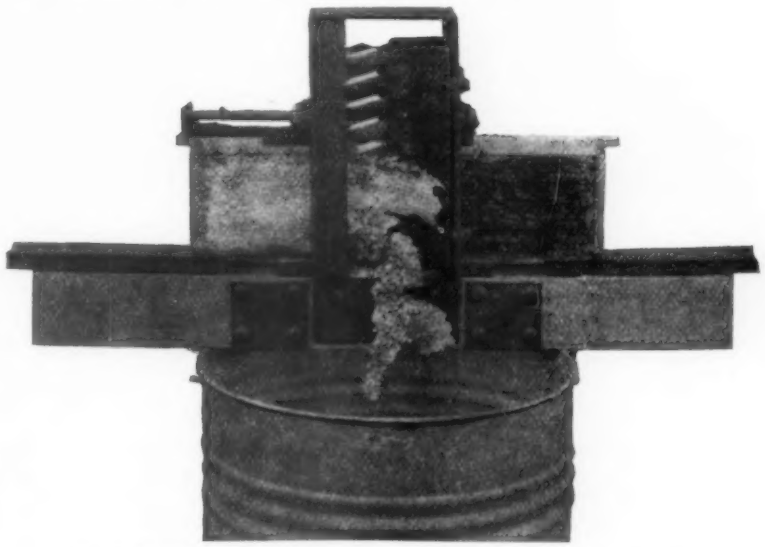
William Russell, State Bee-Inspector of Minnesota, died Sunday, May 16, 1909, at the Thomas Hospital, Minneapolis, after an illness of 3 months. The latter part of January he fell 12 feet and received injuries, which, complicated with a severe attack of grippe, resulted fatally.

Mr. Russell was born in Cullen, Scotland, April 4, 1850. He went to Minneapolis in 1884, and located at Minnehaha Falls, where he remained.

In 1890 Mr. Russell began bee-keeping as a business, and devoted much time and study to this work, which he found very congenial. When the office of State bee-inspector was created, Governor Johnson honored him by the appointment, and he was reappointed thereafter. In the death of Mr. Russell, Minnesota loses one of its most enthusiastic workers for the interest of bee-culture.

It was our good fortune to have a personal acquaintance with Mr. Russell, having met him at a number of bee-keepers' conventions. He was a very genial and interesting man, and always ready to do his part in any line of work in which he became interested. Some years ago, we had considerable business dealings with Mr. Russell, and everything was always entirely satisfactory.

His wife will have the tender sympathy of all bee-keeping friends in her bereavement.



NO. 2—FERGUSON UNCAPPING MACHINE—SIMPLER ADJUSTMENT.

The Ferguson Uncapping Machine

Some time last fall we mentioned this machine in an indirect way, as Mr. Ferguson was not quite ready at that time, to have it announced under his name. Even now he is not prepared to offer it for sale, but has completed several of the machines for use in experimenting in a few of the large extracted-honey apiaries. For simplicity and inexpensiveness we believe it will lead all others for the present. In fact, we can scarcely imagine how a machine could be invented for the purpose of uncapping honey that would be any simpler in its mechanism, and cheaper in its production, and yet do the work properly. It is light in weight and very compact, not weighing over about 25 pounds so that it can easily be carried in one hand. There is practically nothing about it to get out of order, and for rapidity of uncapping we don't see that anything further could be desired. In trying it with Mr. Ferguson, we found that combs could be run through it and satisfactorily uncapped at the rate of about 6 a minute, and that surely is "going some."

It is easily adjustable for different thicknesses of combs, and also for various depths of frames. Neither heat nor any outside power other than that of the hand is necessary to do the work with this machine. In introducing and withdrawing the comb it is not necessary to touch anything but the frame. The cappings drop where wanted away from the knives so that it is also clean to manipulate.

Fig. 1 represents a regular Langstroth extracting-frame which helps to get an idea of the size of the machine. When introducing a frame it is set in a bottom guide and is then pushed between the two sets of uncapping-knives until the nearest frame end-bar is about

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even with the uprights of the machine, when a dog or catch falls back of the end-bar, which with a further push sends the comb clear through the machine, completing the uncapping.

Mr. Ferguson has two styles of this machine, one of which can be adjusted to different thicknesses of comb and frame by simply moving the part showing the knob at the top. The other style is adjusted with set-screws. This latter style is preferred, as it is somewhat simpler and stronger than the other.

The combs shown are some that were filled last season, and had from one-fourth to one-half granulated honey, but this did not prevent doing a good job of uncapping. Undoubtedly this machine will uncap satisfactorily any honey that can be extracted.

Mr. Ferguson arranged to secure patents protecting his invention, and, as above noted, has planned with some large honey-producers in various parts of the country for making a thorough test of his machine this season, and until it has had a satisfactory trial and proved to be in every way what such a machine should be, none of them will be for sale.

Mr. Ferguson has been working on his machine for a number of years, making several models, and believes that he has finally produced one that will be a complete success. No doubt when he is ready to put it on the market he will have literature that will describe the machine and its manipulation in detail so that any bee-keeper who does enough extracting to be worth while can easily understand how to use it properly. By another season Mr. Ferguson expects to have arranged for its manufacture, and be able to furnish it to all who want it.

Moving Bees Short Distances in Summer

"The New-Mexico Chap" seems to have had a good deal of experience in moving bees short distances in warm weather, and he says, in Gleanings, that if they can be moved at any time when they have found no honey for 2 weeks, they may be moved without precaution, and few or no bees will return to the old location.

Field-Meeting of New Jersey Bee-keepers

The New Jersey Bee-Keepers' Association will hold a field-meeting in Mr. Harold Hornor's apiary, neat Mt. Holly, Burlington, N. J., Saturday, June 26, 1909.

An interesting program of talks and demonstrations will be given. All arrangements are not made yet, but will include as follows:

"Treating Foul Brood, and Getting a Honey Crop at the Same Time," by W. W. Case, President of the New Jersey Association; Miller's "Automatic Decapper" will be demonstrated by Mr. Miller or representative; transferring from box-hive to frame-hive; queen-hunting contests by experts; requeening; Pratt's Swarm-Box to start queen-cells; observation hives, etc.

All bee-keepers and others interested in New Jersey, Eastern Pennsylvania, Delaware, Southern New York, and Connecticut are invited to attend. The Philadelphia Bee-Keepers' Association will attend as invited guests.

Mt. Holly is on the Pennsylvania Railroad, and can be reached from all points on that line and connecting lines. It can also be reached by trolley line from Philadelphia and Camden, N. J.

Bring any samples of 1909 crop comb and extracted honey; also of common and rare honey-plants in your locality for identification and classification. One or more expert botanists will be present.

We would like to have those who expect to attend, to drop us a postal in advance. It will be an advantage to know in advance what provision to make in the way of lunch and refreshments.

ALBERT G. HANN, *Sec.*

Pittstown, N. J.

Honey Imported Into the United States

Bee-keepers are sometimes inclined to be alarmed about the amount of honey imported into this country. D. Steengrafe, in Gleanings, shows that the large amount is more apparent than real. The year 1908 shows the largest imports for many years back. In that year, the total arrivals at New York were 985,620 gallons. But of this amount Mr. Steengrafe says 712,800 gallons were in transit for Europe, leaving only 272,820 gallons for consumption in this country. If we figure that at 12 pounds to the gallon, and 6 cents a pound, the value will be $196,430. Dr. Phillips estimates the annual production of honey in the United States at somewhere about $20,000,000 in value. The value of the imported honey consumed in this country will be seen to be less than 1 percent of that. The price of honey, therefore, can not be so very greatly affected by the imported article.

Alexander's Practical Bee-Culture

We have received a copy of "Alexander's Writings on Practical Bee-Culture," edited and compiled by H. H. Root, Associate Editor of Gleanings in Bee-Culture. It is a 96-page pamphlet, 6 by 9 inches in size, and contains practically all of the splendid articles on bee-keeping written by the late E. W. Alexander, who was perhaps the most extensive as well as one of the most practical bee-keepers in New York State. For nearly 40 years he had kept bees in a large way, producing honey by the carload. In this pamphlet he gives the cream of his long and successful experience with bees. Some of the chapters are as follows: "Bee-keeping as a Business," "Profits in Bee-Keeping," "Spring Management," "Building up Weak Colonies," "Spring Feeding," "Transferring Bees," "Honey Production," "Comb vs. Extracted Honey," "Disposing of the Honey Crop," "Better Prices on Honey," "Queens and Queen-Rearing;" "Wintering Bees," "Bee-Disease," etc. It is a very comprehensive book, and ought to be in the hands of every bee-keeper who desires to have the largest success possible with the bees. It is sent postpaid for 50 cents, or we club it with the American Bee Journal for one year—both for $1.15. Address all orders to the office of the American Bee Journal.

Recipe for Paste

Work 4 pounds of soft wheat flour into a batter (free from lumps) with 2 quarts of cold water. Dissolve 2 ounces of alum, in one-half pint of hot water. Take 2 gallons of boiling water and stir the batter into it. If necessary, continue boiling until the paste thickens into a semi-transparent mucilage, then stir in the alum solution. As a preservative, add a few drops of oil of cloves.—A. T. S., in Practical Printer.

To New Jersey Bee-Keepers

Our foul brood bill failed to pass. It was introduced into the Senate by Senator Gebhardt, of Hunterdon county, and was defeated by *one* vote. Of course, it did not get to the Assembly, so we do not know how they stood. It was supported by the Senators from the agricultural counties and objected to by the Senators from the cities. We asked for an appropriation of $500, and that was the chief objection to the bill. There is a threatened deficit in the State treasury of over $500,000, so all new legislation that included appropriations was objected to. All appropriations in the State were cut down.

We were disappointed but not discouraged. We will try again next year. The finances of the State will be in better shape, and the matter will be better understood, hence we will stand a better chance to get our law.

In the meantime, we would like to be kept informed about the extent of foul brood in the various parts of the State, and to have more bee-keepers to join our Association. The better we are informed on the extent and injury of foul brood in the State, and the stronger our State Association, the more effective we can argue with the legislature. ALBERT G. HANN, *Sec.*

Pittstown, N. J.

"The Honey-Money Stories"

This is a 64-page and cover booklet 5¾ by 8½ inches in size. Printed on enameled paper. It contains a variety of short, bright stories, mixed with facts and interesting items about honey and its use. It has 31 half-tone pictures, mostly of apiaries or apiarian scenes. It has 3 bee-songs, namely: "The Hum of the Bees in the Apple-Tree Bloom," "Buckwheat Cakes and Honey," and "The Bee-Keeper's Lullaby." It ought to be in the hands of every one not familiar with the food value of honey. Its object is to create a larger demand for honey. It is sent postpaid for 25 cents, but we will mail a single copy as a sample for 15 cents, 5 copies for 60 cents, or 10 copies for $1.00. A copy with the American Bee Journal one year—both for 80 cents. Send all orders to George W. York & Co., 118 W. Jackson, Chicago, Ill.

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Conducted by EMMA M. WILSON, Marengo, Ill.

Diseased Bees and How to Treat Them.

DEAR MISS WILSON:—I have discovered dead brood in considerable quantity in 2 of my colonies, and do not know if it is foul brood or not. The brood apparently all died at the same age, just as the larva becomes upright in the cell. Some of the cells are capped, and the caps broken and sunken. The dead brood does not smell, nor does it rope. Still I fear foul brood or some other brood-disease.

1. Can I do better than employ the McEvoy method?

2. I have discovered the dead brood in 2 colonies. I have 10 other colonies apparently healthy, but there has been great exposure, exchange of combs, honey dropped, etc. Do you advise treating all colonies as the wisest plan?

3. As I understand the McEvoy plan, the bees are first shaken onto foundation-starters, then after 4 days of comb-building, given full sheets of foundation. Will it be necessary to destroy the frames given with the starters?

4. Would it be possible to disinfect all frames, even those having the dead brood, by repeatedly boiling the frames, but destroying the old combs?

5. Can the queen-excluders, hives, fixtures, etc., be disinfected and used again? If so, how?

6. It will be a month before I hear from you; at least a month before I can get supplies for New York, bringing us to July. By that time there will be only a very light honey-flow. Can the treatment be employed then?

7. Is there any one to whom I could send a sample of the dead brood to learn positively if it is diseased brood? Please give his address and state charges.

8. How would it do to wait until fall when there is no brood in the hives? They would have to be fed when shaken on the foundation-starters, would they not? If treated when the hive is full of brood, must the brood be destroyed?

(Miss) KATE BEATTIES.

Thibodeaux, La., April 19.

It is a very unusual thing for any of the sisters to report anything like foul brood. Is it possible that they have less trouble with it than the brethren?

1. No; but remember that the McEvoy method includes treatment in the fall as well as during the honey-flow.

2. It is hardly necessary to treat a colony so long as the brood appears perfectly healthy.

3. No; merely melt up the contents of the frames.

4. Yes.

5. Mr. McEvoy thinks that hives need not be disinfected. Editor Root, who has had much experience with foul brood, thinks that while that would generally be safe there may be occasional exceptions; and that it is better to disinfect at all times. Moisten the inside of the hives with kerosene, touch a match to it, and the slight burning out will do the business. Frames, etc., may be treated the same way.

6. Yes. But it is possible that it may be even better to use Mr. McEvoy's fall treatment. See last item on page 166 of this Journal. The main point to keep in mind is that you must have combs filled and sealed by *healthy* colonies, and that there must be at least some pollen present.

7. Yes, send sample to Mr. N. E. France, General Manager of the National Bee-Keepers' Association, Platteville, Wis. If you are a member of the Association there will be no charge. If not, send along a dollar to become a member.

8. This is answered in No. 6. If treated when the hive is full of brood, the brood must be destroyed.

The Spring and Condition of the Bees.

The spring of 1909 was unusual. Not in many years has there been a spring before when there were so few days up to the 4th of May when bees could fly. The blooming of the soft or red maple is usually the signal for taking the bees out of the cellar. The first maple was seen in bloom March 25. But the weather was so forbidding that it was not thought advisable to take out the bees just yet, and very few of the maples were out till April 5, when the bees were taken out.

On that day the thermometer went up to 73 degrees, and the bees had a glorious flight, after their 129 days' confinement. But after that day they had little chance to fly. It was cold and wet mixed up with rain, snow, hail, lightning, thunder, and wind (took off a chimney of the house and part of the shop roof), and whenever the bees did have a chance to fly they seemed desperate in their attempts to rob. May 1 it snowed a good part of the day, thawing about as soon as it fell, but May 4 it was warm enough for bees to fly, and May 5 it seemed to burst out into summer weather, with the thermometer at 84. Then the bees quit their meanness, gave up robbing, and turned their attention to the fine display of dandelions, having had practically no chance at soft maples and elms.

We always plan to have the bees supplied with abundant stores in the fall, so that there will be no need to open the hives until fine weather comes in spring. But for some reason there will always be an occasional colony rather light when taken out in the spring; possibly because it overeats. There were half a dozen or so of such colonies, and to each of them, as soon as convenient after they were taken from cellar, was given a frame of sealed honey, or else a couple of sections. To give this there was no need to open a hive. We merely pulled off the entrance-board, shoved the honey under the bottom-bars (how handy that 2-inch space under the bottom-bars comes at such a time), and then tacked on the entrance-board again, leaving the hive with its cover glued on just as it was in the fall, with its entrance of an inch square or less.

Ordinarily no further attention is given to the bees until the weather is warm enough for the first overhauling. But this year, after a month of such beastly weather had passed, we began to feel just a bit uneasy for fear some colonies might be running short. Right here is the place for those sisters who have 10-frame hives to congratulate themselves. With a 10-frame hive you can get in such a stock of stores in the fall that there can be no need to give the matter any thought till the harvest comes again. You cannot do that with 8-frame hives; and we have 8-frame hives.

So May 8 all hives were hefted. It's a back-breaking job to lift a lot of hives from their stands when a good share of them are very heavy. But there's no need to lift them all. When a hive feels as if nailed down, just pull on it hard enough to make sure it isn't too light, and let it go at that. The few that were suspiciously light were opened and had a frame of sealed honey given. In reality only one colony of the few was so short of stores as to be in immediate danger. That same day we overhauled the first 30 colonies, seeing whether a clipped queen was present in each hive, and noting conditions. When a comb was found nearly empty, it was exchanged for a sealed comb of honey. Then on the following days we kept on the same way till we had gone through the whole apiary.

Thus you will see that up to May 8 the covers were left sealed on just as they were in the fall. There was no need to open them then, only for the fact that there is always the possibility that one or more colonies may be queenless, and it is a pity to have queenless bees wasting their time in spring when they could help at rearing brood, either by being distributed among queen-right colonies or by the plan of uniting a queenless colony with a weak queen-right colony.

Some young sister may say, "But why don't you give a frame of brood to a queenless colony, and let it rear a queen?" Dear sister, when you're a little older you'll not think of having a queen reared by a lot of old, queenless bees. Neither will you think of rearing a good queen so early with any kind of bees.

There are some who would say that if we didn't allow the colonies to requeen themselves, but requeened each colony before the queen got old we wouldn't have any queenless colonies in spring. The fact is that a colony may be queenless which had a queen less than a year old.

Probably we never had a spring before when near the middle of May there was so little brood in the hives for the amount of bees. There must be some hustling if colonies are strong enough for the harvest. But then the harvest is likely to be late, if indeed there be any harvest, for white clover

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doesn't appear to be over-abundant. Will it yield when it does bloom?

Left with Farm and Bees.

DEAR MISS WILSON:—Two years ago God called my husband home, and I was left with the care and responsibility of a farm. In connection with the farm I have my poultry and bees. This spring I have 32 colonies. I have been very much interested in them, and love them. I commenced with one colony. Sometimes when I read the glowing accounts of some of the bee-keepers and results, my experience would be very tame in comparison, for I am a learner. In this locality we have to keep our bees in the cellar so long. Mine winter well, and I guess I have more colonies than any other in this vicinity. I enjoy the American Bee Journal, and think I know many of its correspondents, and am proud of our bee-people, who exemplify so many of the characteristics of our fellow-worker, The Bee.

EMMA S. LANE.

Newport, Vt., April 22.

Most bee-keepers have years of success, years of partial failure, and sometimes years of total failure, when the bees must be fed to keep them alive. Very likely your experience is much like the rest, and so not so very tame, after all. We all like to report our successes, and are not so anxious to tell about our failures, but they are usually there, just the same. However, bee-keepers, as a class are a bright, enthusiastic lot, failures are taken philosophically, and they get ready for and expect a big crop next time.

Conducted by J. L. BYER, Mount Joy, Ont.

Backward Spring—Willow Bloom.

The prediction of many that we would have a very cold, backward spring, after such a mild winter, has been fulfilled with a vengeance. Three late springs now in succession, and the present one leads in that respect. May 26th, and no apple blossom out yet, and dandelion just at its best. However, the bees are not touching the dandelion during the past few days, because, forsooth, a more profuse secreter of nectar is in bloom—the large willows.

Speaking of this tree, reminds me to say that I know of no other source of nectar that a bee-keeper can provide for his bees in so short a time. The willow is a wonderful grower, and in a few years after being planted, it will bloom and yield nectar every day it is in bloom, provided the weather is warm enough for the bees to fly. It is a *wonderful* yielder of nectar too, and while the honey does not come as a surplus, yet it is of immense value in helping to build up the bees for a later flow.

Today I have been clipping queens at one of the yards, and the combs were simply crowded with fresh nectar to such an extent that it will be necessary to super a great many colonies for the apple-blossom, should the weather be fine. However, it is not apt to be fine, as we usually get rain about this time of the year, more or less—generally *more*.

For some reason—probably because of a very cold spell in latter part of April, as well as a shortage of pollen in the hives—brood-rearing came practically to a stop about April 30th, or a little earlier than that date. This was discovered when we started to clip some of the queens about 21 days after that date, and in going through 60 colonies not a single bee was seen emerging from the cells, although a lot of brood in the egg and larval stage was present. Bees generally are in good condition after all, and as the clover is late, the chances are that they will come into the harvest in grand condition. Some have reported shortage of stores, but in this section the opposite is the rule, and in my own yards I have not found a single colony that would not have had enough to carry them to the first of June, even though nothing came in from the fields.

Opposed to Early Spring Feeding in Cold Climate.

As most of the readers of the American Bee Journal are aware, the writer of these notes is opposed to early feeding in our cold climate, and the experience of another bad spring has made me more decided than ever on the question. Just at present I am asking myself what could have been gained by feeding even if it would have acted as a stimulant to brood-rearing, as the weather has been so cold that our main concern has been to see the bees kept in the hives as much as possible, and feeding certainly has a tendency to bring about the opposite to that. Then with *abundance* of good stores in the hive the bees simply turned a great quantity of honey into brood, and at this date, although the bees have had but a few days to gather pollen and honey, yet as has already been intimated, the majority of the colonies will need supers for the apple-blossom yet to come, in fact, some have supers on now and are crowded with bees. Some of these hives, by the way, are equal to about 15 Langstroth frames; and, strange to say, they are ready for the supers before the few 8-frame Langstroth hives are, that I have in the yard.

Clover is still looking fine as it was when I reported last month, so, as a consequence, the spirits of the bee-keepers are higher than is the case some years at this time. May we have no reason to get gloomy later on, is the wish of the writer.

Ontario Bee-Keeping Making Progress.

The interest that is being taken in bee-keeping here in Ontario, is well seen by the growth of the local county associations, of which there are a number in the Province. The Department of Agriculture is giving more encouragement to the industry than heretofore, and the bee-keepers are appreciative, as is shown by the number of resolutions passed this spring by these associations, thanking the Department for its good work.

It is noticeable, too, that the work of the Committees to gather statistics and suggest prices for the honey, is also coming in for a good deal of praise from the same source, and there is no question but that it is well deserved, as no other single factor has done more for the industry during the past few years than has this same Committee. This organization, as most readers will know, is a product of the Ontario Bee-Keepers' Association, and if that body had never done any other good act, it certainly is to be commended for this one. No question but that it has meant thousands of dollars to the bee-keepers of Ontario, in the matter of getting better prices—prices that are no more than just—for their honey.

Spring Loss of Bees by Outdoor Feeding.

Yesterday I was inspecting a yard of bees that are to be sold, and I was struck at finding them in a very weak condition—this in a season when there is almost universal good wintering. What puzzled me most, was that the hives were all clean, without a mark of dysentery, and there were no dead bees on the bottom-boards. This proved to me that the loss had not been in the winter, and yet they were all dwindled down to mere nuclei, the most of them not having over 3 frames of brood.

Naturally I began to inquire for the reason of their bad condition, and I could form no conclusion one way or the other, until one of the household remarked that they could not understand it, "because they had fed the bees honey outdoors ever since the snow went away, so that they would not starve." There I had the solution in a nutshell, for the bees had simply been enticed outdoors all this cold spring, only to perish, and, as result, all the old bees were gone, leaving only a few babies in the hives.

Long Cellar-Wintering.

Three different bee-keepers in Ontario have written me that they did not take their bees out of the cellar till May 5th, after having been inside for about 6 months. That is a long time for bees to be shut in, and as all of

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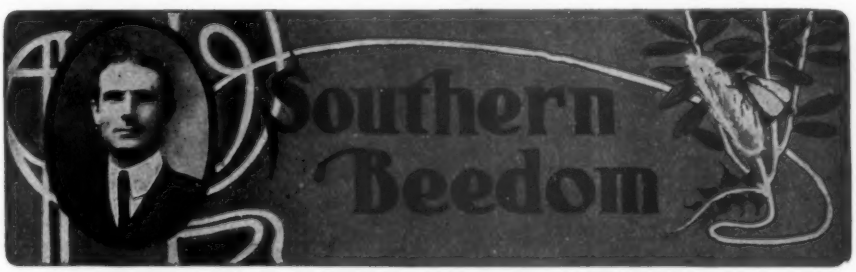
them say that the bees are in good shape, it speaks volumes for the cellar and the nature of the stores in the hives. My own bees that were in the cellar, were taken out April 1st, and I have an idea that they were better out than in the cellar so long. Although the weather was cold during April, when I examined them hastily on May 5th, a great lot of young bees were present, and the bees were in good shape. However, I do not pretend to know much about cellar-wintering, so for ought I can *prove* to the contrary, perhaps they would have been as well off in the cellar for another 4 weeks.

Wintering Bees—Introducing Queens.

During the past week I have attended two of the local conventions—York and Victoria counties—and at each there was a fair attendance with a whole lot of enthusiasm. At the latter convention, held at Lindsay, Mr. H. G. Sibbald was present, being sent by the Department of Agriculture. He gave two addresses, one on the wintering of bees, and the other on the introduction of queens. Both subjects were handled well, as might be expected of a bee-keeper of Mr. Sibbald's calibre. Space will not permit to give more than a few words as to what was said, but the main thing, as Mr. Sibbald sees it, that is essential for good wintering, is a good queen coupled with abundance of good winter stores. All who have studied the subject will agree with him.

On introduction of queens, Mr. Sibbald gave some of the quick methods as used by him in his apiaries. One of them is as follows: Hunt the queen out that is to be removed and put her in a wire cage on top of the frames. Then the queen that is to be introduced is laid on top of the same frames, too, and all left till evening. Now remove the old queen, and put the new queen in the cage from which the old queen has just been taken, and over the end of the opening fasten a piece of comb foundation. Place on the frames again, after punching a few small holes with a pin through the foundation over the opening. In a few hours the bees will gnaw through the foundation and release the queen.

I forgot to state that in changing the queens, he sometimes rubs the dead body of the old queen that has just been killed, over the outside of the cage she just came out of. Mr. Sibbald says it is a sure plan with him; and I might say that today I tried the scheme with 3 queens, so I hope to be able to report favorably next month.



Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Bountiful Rains in Texas.

The Texas bee-men are rejoicing over the bountiful rains that have fallen in nearly all parts of the South. There has been a long-continued drouth since last fall, with very little rain, and the usual spring honey crop has been a short one.

Everybody is looking forward to a bountiful summer harvest now, and it is very probable that such will come. The first blooming period of mesquite, in April, was very little. This has given the trees a long resting period. With the good rains the second blooming period, which comes in June or early July, ought to be an extra-heavy one.

The bees are in excellent shape in the most apiaries, and it is hoped that they will fill the hives to the full expectations of their keepers.

Cactus Blooms Destructive to Bees.

The following from Mr. Otto Suelten-fuss, of San Antonio, is of interest:

"Have you ever noticed how destructive the prickly pear blossoms are to the bees? Today I thought I would go and see if there were many bees working on prickly pear blossoms. I found them working on the blossoms busily. While standing near a large prickly pear bush and watching them I thought I would open a blossom that was already closed up, and through with blooming, and did so out of mere curiosity. And what do you think I found? The closed blossom had a dead bee in its embrace. Then I opened up more blossoms and found more dead bees inside of them. Then I thought I would open up an even 100, and in the 100 blossoms I opened I found 23 bees. Some of the blossoms contained 2 bees. Now anybody can easily figure out what an enormous drain that means on the bees in a locality where prickly pears abound."

Since receiving the above, several examinations were made of the blossoms near our apiaries, to ascertain if possible the cause and extent of the trouble.

Those of the North who are not familiar with extensive areas in the Southwest that are covered with the cactus, commonly known as "prickly pear," on account of the pear-shaped "leaves," which are really the thickened green stems of the plant, covered with very sharp spines, have little idea of the amount. When these are in bloom there are thousands upon thousands of large yellow flowers into which the bees go eagerly for the nectar which is abundant in the lower part of the flower. Often there can be found from 5 to 8 bees, all digging down among the stamens, of which there is a great cluster, and on account of which the nectar is hard to reach, unless the weather is so favorable that much nectar is secreted and it rises higher up in the blossom. Owing to the long drouth, it may be that the bees which I have observed, could not reach the nectar, and simply worried themselves to death in trying to do so. Many of the bees I found were so worked up about it that they paid no attention to any disturbances from the outside, and were so much fatigued and worried that they ran around as in a frenzy. Right in among these I found dead ones, often 2 in a blossom, long before it closed up.

Another observation at nearly sunset showed that in their eagerness to get some of this nectar, which they smell but can not reach, they remain in the blossoms while they close up for the night. Many bees even enter such blossoms when nearly closed already, and then are caught. I do not think that the nectar from these cacti is poisonous to the bees, although I have many times seen them after "loading up," run around in a frenzied manner as if they were intoxicated.

While the mortality in an apiary where these cacti abound may be great, yet as the blooming period comes just in a time when our bees are often near starvation, we may welcome them even if we lose some of the bees. One year cacti were the only thing which saved me from feeding barrels of sugar or letting the bees starve.

The honey is not very good, being amber in color and rank flavored. It is what I call "blubbery," very much like the sap of the thick green stems. We do not get enough of it to injure our good honey when we have an early flow, and the bees do not work on the cacti then.

A Texas Foul Brood Bulletin.

"The Foul Brood of Bees, and the Texas Foul Brood Law," by Prof. Glenn W. Herrick and E. E. Scholl, is a bulletin issued by the Department of Entomology of the Texas Experiment Station. It should be in the hands of every Texas bee-keeper.

While a great number of these bulletins have been mailed to bee-keepers, yet, since the mailing list of bee-keepers is incomplete, there are many who may not have received a copy. Such should address a postal to the Department of Entomology, at College Station, for a copy.

Attention to the importance of knowing about diseases of bees, more especially foul brood, has been called by me several times in these columns. Foul brood is very little thought about so long as it is not in one's apiary, and when it has made its appearance, it is generally too late to study up the subject. The greatest trouble lies in the fact that the disease is not discovered until it has played much havoc in the whole apiary. Especially is this true of the careless bee-keepers or the one with large numbers of colonies. The disease may not be discovered until some of the brood is actually decayed, or the colonies even dead. In many cases such hives are left alone, and robbers carry the

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disease from them to almost every colony in the apiary. Even neighboring apiaries are infected in this way, and an entire locality becomes a regular hotbed of foul-broody bees. Such is much more serious than most of our bee-keepers suppose. It makes bee-keeping quite uncertain and unprofitable, hence the subject should be studied carefully, even if foul brood never shows up.

In our inspection work we have learned of all kinds of experiences. Many a bee-keeper has unknowingly spread foul brood throughout his apiaries, by exchanging combs and hives of brood, bees and honey, not knowing the trouble existed in the earlier stages. We have seen apiary after apiary infected with foul brood just because the owners of the bees were not posted. Just such carelessness has caused the loss of thousands of dollars to the industry, and now, since we are able to learn about bee-diseases, how to avoid them, and how to care for them after they appear, there is no excuse for our not having studied the matter thoroughly. The time is now when every bee-keeper should know how to combat the diseases of his bees as well as the stock-raiser or any others.

Bees as Pollinators.

That the honey-bees are a great necessity for the proper fertilization of fruit and other blossoms, has been expounded time and again, and although a good many persons are familiar with this fact, it is quite necessary to call others' attention to the matter from time to time. The following is an example:

It is quite evident that from the mention made in many of our agricultural journals we are awakening to the importance of bees in the orchard during blooming time. Farm and Ranch says: "Rear bees in connection with the orchard. You get honey and better fruit. Bees help fertilize the blossoms. Give the bees a chance and they will literally break the boughs of your trees with the weight of fruit."

In this same connection, I had 4 plum trees that were bearing their second crop of fruit. The trees were well grown, and set a tremendous lot of fruit-buds. At blooming time the bees swarmed over these trees day after day. The result was that the trees set so many plums that the limbs broke to the ground. Consequently 3 of the trees are dead now and the fourth scarcely alive. I have 100 colonies of bees near this orchard.

When I first began bee-keeping I was located 12 miles from my present home. When I came here there were no bees in the vicinity. There was a neighbor with a large orchard here, but his trees refused to bear fruit to any great extent. When I brought 100 colonies within a mile of the orchard, the trees began to bear. My neighbor told me the bees were a blessing to him, and made his orchard productive.

Bartlett, Tex. T. P. ROBINSON.

Scarcity of Pollen and Condition of the Bees.

It is surprising what a difference there is in localities for bees only 12 to 14 miles apart, and that, too, with apparently the same honey-plants in each locality. To make it more easily understood what I mean, a visit to one of my outyards for the purpose of feeding, if necessary, showed the bees to be strong and in good condition with most of them well supplied with old stores. We did some exchanging of combs to equalize stores, fed some 75 pounds of sugar syrup, and pronounced the yard safe from starvation until the first of June. This was the latter part of April. But to be sure that none should starve, I visited the yard again on May 15, and to my surprise and disappointment, 11 colonies had died of starvation, and may others were at the point of starvation, and at the same time bees near home were gathering enough for a living, and some new swarms were issuing. Of course, I am ashamed of this, but you know it is said, "An open confession is good for the soul," etc.

Owing to the long-continued drouth, bees have suffered in many localities over the State, and especially here, and a new trouble developed with the bees that I don't remember ever seeing or hearing of at the time of year—that is, a scarcity of pollen in April. I have good evidence that my bees away from the River suffered for pollen, and as a result many colonies that were well supplied with honey are to-day rather weak in bees on this account. Now that generous rains have fallen almost all over the State, we hope for better times, and are sure they will come, but fear, to take the State over, that the honey crop will be below the average.

A great many are very much disposed to neglect the bees when these discouraging times come, and some go so far as to sell their bees for less than the hives themselves cost, and I confess it is one of the very trying things on the nerves of even the veteran to have to feed the bees for weeks, and at times even months, to prevent actual starvation; but it has always paid me to do so, in the long run. I have been feeding some of my bees now for nearly 2 months, but we think the feeding a thing of the past now for this year, and I expect some new honey in the near future. I can't expect a full crop, however, owing to the poor condition of the bees, caused from lack of pollen, and starvation. L. B. SMITH.

Rescue, Tex.

Bees Attack a Bee-Hive Hat.

If the experience of one young lady may be taken as an example of what is likely to follow from the wearing of the hat known as the "bee-hive shape," the doom of that style of headgear is surely at hand.

While sitting in Travis Park this morning Miss Daisy Whitlay of Kansas City, who is a guest at a local hotel, was startled to find herself beset about the head and face with a buzzing storm of bees.

The bees had swarmed from a near-by hive and attracted by the shape and appearance of her hat, attempted to gather upon it.

Miss Whitlay fought them off and ran from the place. Before she could escape, however, she had been stung in half a dozen places on the face, neck, and hands.—San Antonio Light.

Too bad the women will change styles in hats again. These changes are "kind of heavy" on the married bee-*men*. The late kinds of stylish things to adorn the heads of their better halves are expensive, but since the "bee-hive hat" came into style many a bee-man has partly rejoiced as he saw a future use for the investment made in one of these "head-gears." They can hardly be called hats any more, but the bee-keeper hesitated not to invest in the "bee-hive hat," for the reason that he had "his eye on it," as soon as it was to be discarded. It was then to find a place in his front-yard apiary as an ornament for displaying his best colony of golden bees. Many a bee-man would fain have a real old-fashioned straw-skep for ornamental purposes if it could be obtained without going across the waters for it. This desire the bee-hive hat might have filled, but it is going out of style again. It is too expensive for the above purpose unless the good wife gets her money's worth out of it first. Perhaps, when they are out of style, "bee-hive hats" will be sold out cheap. Then every one of us can afford at least one old-fashioned straw-skep in our bee-yard!

Cheap Capping Cans.

In answer to J. R. Bogart's question propounded in Dr. Miller's Department (page 373, 1908), as to the cheapest and easiest way to care for cappings in a small way by small producers of extracted honey, I will say that one can proceed in this manner and get along very well at small expense:

Go to your grocery store and get 3 or 4 50-pound lard cans—compound lard cans are better as they are larger—with both the regular outside cover and the summer cover. Take the summer cover and trim it down so that it will easily go into the can, and perforate it with 8-penny-nail holes. Now get 4 strong wires and make hooks on one end; then make 4 holes to fit the wires in the perforated tin, the holes to be equally distributed around the tin. Run the wires through to the hooks. Next flatten the wires at the other end, and bend them down, making hooks on the other end to fit over the top of the can. Cut the wires long enough to suspend the perforated summer cover about 5 inches from the bottom of the can, or 6 inches if you wish. The object of flattening the wire to make the top hooks is to accommodate the cover proper, which will readily slip down over the whole, eliminating robber-bees.

The next thing to do is to get a stick—a top-bar of a frame will do—drive an 8-penny nail through the center. Now take some strong twine and tie this stick, nail up, across the top of the can. You can tie it down to the handles of the can. The nail is to set the frame on while uncapping. Now you are ready to uncap.

Uncap the can full, set it away to drain, and get a new can. If you wish these cappings to drain extra-well, take a long, sharp knife and cut them down to the perforated tin, some 5 or 6 times, just like slicing a pie, and they will drain out very well into the chamber below. When the cappings have drained 5 or 6 days they can be rendered in a solar wax-extractor, or all put out for the bees to clean up; or if you don't care for the remaining honey, wash them in a tub of water, then render into wax. This way is surely a success. Don't fear as to that, but the only trouble is that the cans are a little too small, and some of the cappings are likely to drop on the floor while uncapping. By moving the nail nearer one side, and allowing the cappings to drop in on the

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large side, you will get along very well. I never used any other kind of uncapping cans until my annual output was far above 20,000 pounds.

As to straining, I have used a very thin cloth, on the order of a bolting cloth, for the purpose. I make a hoop just a little larger than the top of a lard can, as above mentioned, and sew the cloth to the hoop, not too taut. Leave it loose enough so that it will sag about an inch or so in the middle. This strainer fits over the entire top of the can, and the honey is surely strained when run through it. I strained over 20,000 pounds thus, last season. I mount the extractor and run the honey direct from the gate of the extractor through the strainer and into the can. A person will get along very well with these strainers, if he had 2 or 3 of them, and with frequent washing them in a tub of water.

Should you try the cloth strainer, be sure to get a very hard-spun thread, for honey will not run through cloth made from fluffy-spun thread. A better strainer can be had by having your tinner make you one from very finely perforated tin, with holes about 1-64 in. in diameter, or the size of a common needle or an ordinary pin.

To fill jars with the honey, clean up the extractor, mount it, and pour it full of honey, and fill jars at the gate.

Bartlett, Tex. T. P. ROBINSON.

Non-Swarming Bees

BY C. P. DADANT.

There is a discussion of this question going on in the bee-papers. In Gleanings for May 1st, Dr. C. C. Miller cites Editor Kramer of the Swiss Bee Journal, as saying that the swarming propensity has been worked out of their strain of bees, in Switzerland, by selection among their native race, but that the Americans can never succeed much in this line "with the hot-blooded Italians." Editor Root did me the honor to ask my opinion in the matter, and I at once replied, stating that I thought the fault was not with the race. Since writing that article I have given the matter some thought, and it struck me that it would be advisable to make an enquiry into the opinion of the leaders as to the comparative tendency of each race of bees to swarm, so that we might ascertain whether one race is positively more prone to swarm than other races, and, if so, which race it is.

Personally, I have had a long experience with both common bees and pure Italians, as also with all grades of hybrids of these two races. We have very few swarms, owing to our management, but I cannot say that I ever noticed any difference between one race and the other, prolificness and management being equal. However, the opinion of the experienced writers ought to settle the matter.

Cheshire thinks the common bees "swarm less than the yellow races and adopt sections more readily." But on the other hand he hopes that by selection we may secure for them the "greater coolness and fecundity of the Italian." He speaks of the Carniolan as "prolific and industrious, gathers honey in large amount, but it is a free swarmer."

Cowan, the other leading writer among the English authors, states that the Italian "increases more rapidly, is ready for swarming earlier and gathers honey from plants which are not frequented by the blacks." Concerning the Carniolan he says that "their principal failing is a propensity for excessive swarming."

Dzierzon, who was perhaps the most judicious and attentive observer among apiarists during the Nineteenth Century, and who cultivated several different races, reports that the "Carniolan has great propensity to swarm," and that "even the common black or German bee may be divided into a honey-bee and a swarming-bee. The latter, which is also called the heath bee, in consequence of the management adopted, swarms continually."

Among the French writers, De Layens and Bonnier make no statement concerning the relative virtues of the Italian and common bees in swarming propensities, but they assert that "the Carniolan bees are very much disposed towards natural swarming, even when they are kept in very large hives."

Bertrand, in the southwestern part of Switzerland, has nothing to say of the Italians, but says that the Carniolans swarm much ("essaiment beaucoup").

In our own country, Quinby, one of the first to handle Italians on a large scale, says, "They begin to swarm 3 weeks before the natives, but gather pollen and rear brood with thrice the energy of the natives." He had not tried the Carniolans.

Hutchinson says that "the Carniolans have a tendency to spend their energies in breeding and swarming," but that "in each race there are strains showing different traits." This expression of opinion is confirmed, in a private letter to me, by Dr. C. C. Miller, in which he says that there are decidedly some strains in each race that have a greater propensity for swarming. This from his own experience.

E. R. Root's opinion, expressed in the "A B C and X Y Z of Bee-Culture," concerns only the Carniolans, and describes them as "excessive swarmers." Mr. Root, in his comment of this question, in Gleanings of May 1st, shows that he does not believe the excessive tendency to swarm is a trait of the Italians.

G. M. Doolittle, in a private letter to me, also picks out the Carniolan as the most prone to swarm above any other races, "especially," he says, "out of season, near the close of the white honey flow and between that and the fall flow." In his experience, taking the Golden Italians as the least inclined to swarm of any bees he has experience with, they grade as follows: Dark Italians, blacks, hybrids of these two races, Syrians, Caucasians, Cyprians, Carniolans, all other conditions being equal.

But here comes another writer who explains the cause of the excessive swarming of the Carniolans. Frank Benton, in his pamphlet, "The Honey-Bee," published by the U. S. Department of Agriculture in 1899, says:

"They (the Carniolans) are quite prolific, and if kept in small hives, such as have been popularized of late in the U. S., are somewhat more inclined to swarm than the other races introduced here. This tendency becomes more pronounced when they are taken into a country whose summers are hot, like ours, and their hives are not well shaded, as they have been bred for centuries, with only slight introduction of outside blood, in a climate where the summers are short and cool. Moreover, the practice in Carniola is to place the long, shallow hives used almost exclusively there, in bee-houses, and side by side, one above the other, with intervening air-spaces, so that at most only the front ends are exposed to the sun. This management, long-continued, has doubtless tended to develop and fix more or less permanently in this race certain characteristics which should be taken into account in their management elsewhere."

Mr. Benton has traveled probably more than any other apiarist, in the interest of bee-culture, and is therefore an authority on the races. The foreign authors I have quoted will also aid us in taking a general view of the subject which will be devoid of the partiality which any one of us is more or less imbued with, on account of judging entirely from local conditions. It is evident that we are not all agreed on these matters. Many of my readers who have experiences of their own with races of varying purity probably have also personal opinions on the point. Enough has been said, however, to convince any disinterested person that the matter of prevention of swarming does not depend upon any one race of bees.

Mr. Ed. Bertrand, of Switzerland, who like many others of the Swiss apiarists, does not find in the Italian bees as eminent qualities as we ascribe to this race, has ventured the opinion that each country possesses the race of bees which suits that country best. This is in line with the Darwinian idea of

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the "survival of the fittest," and is plausible. At any rate, Mr. Bertrand is too eminent and too careful an observer for us to disregard his opinions. Then we must bear in mind that America did not possess the honey-bee originally, since it came with the settlement by Europeans, and was called by the Indians "the white man's fly." So we cannot be said to have the honey-bee which suits our country best until we have given fair trial to all existing races. It is quite likely that the American honey-bee, which will perhaps be called "Apis mellifica Americana," will be a mixture of several races. But we can already feel certain that its nature will have to be curbed for several centuries before we can boast of non-swarming bees, long-tongued bees, etc. Swarming is the only method by which the honey-bee can propagate itself in natural circumstances, away from the hand of man, and for that reason we may be sure that it will be the last characteristic to become effaced in the race by careful management and selection.

Our friends across the Atlantic are producers of extracted honey, like myself. Like myself they use very large hives, perhaps not universally, but quite generally. They will therefore much more readily succeed in decreasing the swarming impulse than most of our American producers. But it must not be taken for granted that our Swiss friends are the only ones who succeed in preventing swarming. It is almost universal in those countries where large hives, the production of extracted honey, and house-apiaries or shelters, are used. In addition, their climate is much cooler, in the summer, than ours, as nearly all of Europe is north of the 40th degree of latitude, while almost the entire United States is south of the 45th. This fact alone would explain the greater success in the prevention of swarming in Europe, by artificial means.

A CORRECTION.

My last article, on page 177, has been made quite unintelligible in the beginning by a printer's error. I said, 7th line: "The royal jelly, so-called, is *now* known to be the same in composition as that given to the young worker-larvæ". The printer made me say: "The royal jelly, so-called, is *not* known," etc. Quite a different meaning.

Hamilton, Ill.

The Swarming Impulse and Its Control in the Apiary

BY RALPH BENTON

Assistant Entomologist, University of California

(Continued from page 176.)

DIVIDING BY HIVE-STORIES.

Division approximately equal, some principles of which I have just been discussing, may be accomplished, I have said, in two ways. One way, and perhaps the simplest way, is to make the line of division between stories. Preparatory to such a division the strength of the colony should be assured and the queen permitted to lay in both stories to her fullest capacity. When the queen is found to be laying nicely in the top story a queen-excluding honey-board may be placed between the stories, confining the queen above. This will save time otherwise lost in having to locate the queen when division takes place.

When conditions are such as to warrant division, and the colony full of bees and brood, the top story with the queen should be raised up, and the lower story removed, and then the top story lowered upon the bottom-board on the old stand. This gives, it will be observed, the flight-bees, the original queen and the younger brood to the new colony on the old stand. The parent colony in the original brood-chamber retains most of the young bees and emerging brood, together with some of the older bees, and should be set up on a new and preferably remote stand in order to retain what old bees it happens to contain. A laying queen may be immediately caged for introduction, or the next evening either a virgin queen may be run in at the entrance, or a ripe cell inserted.

Much time will be saved and greater economy gained if division is not made until at least ripe cells are ready for distribution, although the parent and queenless portion of the divided colony, if it contains, or is given eggs or young larvæ, will provide themselves with a queen in time.

DIVIDING THE BROOD-CHAMBER.

An equal division may be more nearly approximated in the second way of dividing involving a division of the brood-chamber. As before, the brood-chamber is removed from the old stand and either the top story or an empty story set in its place. The old queen, then, with some of the older bees, together with the younger, unsealed brood, are set over into the new hive which, being placed on the old stand, is destined to receive the flight bees. The original brood-chamber with most of the bees in the colony at the time of division, chiefly young bees, and all of the emerging and sealed brood is set up on a remote stand in the apiary, preferably with a distinctive land-mark as a slanted bottom-board before the entrance.

It is to be noted that the original queen is left where the old bees are; that the working force of the colony is kept together on the old stand; and that there is a lull in the emergence of young bees in the new colony on the old stand in view of the fact that the emerging brood and sealed brood is retained in the old colony on the new stand, the effect being to retard and discourage the possibility of swarming where the original queen is kept. On the other hand, the old colony on the new stand has the younger bees and is rapidly reinforced from the emerging brood it contains. Further, this portion of the original colony being mainly composed of young and queenless bees is in the most ideal condition to receive a young queen or a ripe cell, or in the absence of either of these, to rear and care for queen-cells if it be given larvæ of the right age, providing its numbers warrant it, as might possibly be the case if the original colony had been a strong one. I have previously called attention, however, to the economy to be gained from having ripe cells or young queens previously reared, ready to be given the queenless partner to a colony division.

DIVIDING BY NUCLEI.

Another form of division is recognized when an equal division is not sought, but a purposeful unequal division accomplished by simply drawing off a nucleus from the parent colony. The underlying principle of this mode of division is a recognized one in apicultural practice. I refer to the principle of keeping the working force of a colony together as much as possible for the storing of honey, a principle not only behind this mode of division, but also the lines of procedure in the two final systems of handling the swarming problem to be discussed in the present paper.

In dividing on the nucleus plan, the queen and not over 2 frames of emerging brood with adhering bees are drawn off from the colony to be divided and set over into an empty hive to be placed on a new stand and destined to be built up gradually during the season to a full colony, much as any weak colony is built up for the honey harvest by timely and judicious enlarging of the brood-nest. The original colony on the old stand thus made queenless is treated much as previously outlined in the case of more equal dividing. A laying queen should be supplied it as speedily as possible, and plenty of storage-room should be given the bees for work to discourage swarming. This mode of division, in fact, is adaptable to requeening in the spring of the year, a modification being made in that as soon as the parent colony is supplied successfully with a laying queen, the old queen in the nucleus is disposed of, and instead of building up the nucleus into a full colony it is kept throughout the season as a full framed nucleus for the mating of additional queens for use in the apiary. This results in final effect to no net increase or but a very slight increase, only attained as several of the full-framed nuclei are united toward fall to make full colonies for wintering.

On the other hand, when young queens are available in large numbers this system may be followed up further and increase be made the main object. If this be the desired end, the colony as a honey colony is sacrificed and instead of drawing off simply one nucleus with the original queen, the parent colony say of 10 frames with as many more empty combs is divided into 4 or 5 approximately equal nuclei in full-sized hives, the original queen being left with the flight bees on the old stand. Each nucleus is then given preferably a ripe cell, or a virgin queen may be run in at the entrance toward night. The development of each nucleus is then jealously watched, robbing being guarded against and judicious enlargement of the brood-nest practiced as soon as the young queens

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organize sufficient brood to warrant its spread.

Should honey not be coming in fast enough in view of a dearth of a source of honey, or commonly because of the weak condition of the nuclei after division, feeding may be practiced, care always being taken to guard against possible robbing. The supplying to such nuclei of frames partly filled with sealed honey will perhaps be found to be a safer form of feeding than by actual feeding with syrup. From time to time such weak nuclei my be profitably strengthened with emerging brood in patches of the right size to insure breeding within the cluster, taken from stronger colonies.

Shaken Swarms.

The securing of increase or tiding bees through the swarming season by making what are called shaken swarms is a system, as I have said, applicable when the production of comb honey is sought. Having built one's colonies up to a crowded strength, just prior to the main honey-flow is the time selected for making shaken swarms. The weather should be warm and settled and a rapid flow of honey should be on—both desirable conditions for the producing of nice comb honey.

The colony to be shaken is set off the stand and the empty hive filled with frames containing nothing but narrow starters put in its place on the old stand. Then removing 3 or 4 frames from the center of the empty hive, the combs one after another from the parent colony are gently shaken in the empty hive by a jarring motion accomplished by striking the fleshy portion of the hands onto the end edges of the hive, the hands slipped palm inward along the end-bars to the rests of the top-bar. It is the aim to secure only the older bees. It will be found that the bees that have flown will shake off easily and that the young bees, not having command of their wings, will adhere more tenaciously to the combs and so escaping being shaken, will be thus left behind to brood and care for the developing bees of the parent colony, which otherwise might become chilled.

The parent colony is then removed and set up on a new stand. A super with full sheets of foundation in the sections—full sheets are always to be used in producing a fine grade of comb honey—never starters—or better still drawn sections, may then be placed on the new colony. A strong colony so prepared with no room to store honey below and with full sheets or drawn combs above, will in a good honey-flow fill the supers rapidly and finish sections cleanly in appearance. Under such circumstances usually good worker-combs will be built below; this will always be true if a young queen of the current year's rearing be in the colony.

The working force in this plan of division may be augmented as previously described by shifting the parent colony from one side to the other until entirely depleted in numbers. Where a limited amount of increase is desired, shaking 2 colonies into one may be practiced, thus getting three from two. If this plan is to be followed, one or both of the colonies should be made queenless, and, for a couple of days previous to shaking, should be gradually brought close beside each other. Just before shaking, the bees should be smoked thoroughly and jarred severely until they become demoralized. Peaceful union will be enhanced if the bees are sprinkled with thin syrup, or, if new honey is in the combs in abundance, the desired result is usually accomplished in shaking without resorting to such use of the syrup. If both colonies are queenless after the hive is put together, and before all is quiet, a virgin queen may be run in at the entrance, thus supplying the colony with a young queen, insuring good comb-building and further removing the possibility of swarming.

The Prevention of Swarming.

In the foregoing discussion of the various methods of natural and forced swarming I have alluded to certain methods of preventing swarming indirectly in that no increase results; but always it will be observed that this end has been accomplished through some form of swarming, be it natural or forced.

I come now to consider a system for the prevention of swarming in reality, both in process and results. This is something that many bee-keepers who do not desire increase are seeking for, and something which to the bee-master is relatively easy of accomplishment.

In the opening of this article, in speaking of the swarming impulse among bees, I presented five conditions tending to incite bees to swarm. With these five conditions in mind the prevention of swarming resolves itself into a rigid negation or preclusion of any one of these five conditions arising in any one of our colonies of bees. It must be understood that this statement does not refer to "remedial" swarming, but strictly to "preventive" swarming, namely, that it is not sufficient to apply a remedy to a colony when it begins to show active signs of preparation for swarming, but that all measures to be preventive are to be taken prior to any steps on the part of the bees to prepare directly for swarming. The first condition that I named as liable to induce swarming is an over-populous colony. By an over-populous colony I do not mean that the colony is actually too strong, for I never had a honey colony of bees too strong for me; but I mean that the colony in question is too populous for the space it occupies, leading to an over-heated condition of the hive, resulting in bees hanging out. To prevent this occurrence in a colony, room—and by room I mean empty space—should be given between the brood-chamber and the entrance. This can be done by raising the brood-chamber up and supplying the bees with a half-depth story containing starters or a full story with either starters or full sheets of foundation.

The second condition conducive to swarming is a lack of room for the storage of incoming honey. The preventive measure here is another top story, or the removal of honey if it is ripened and ready to come off, by extracting.

The third condition is an outgrowth of the second, and I have characterized it as an inhibited tendency to secrete wax. In giving the colony a ventilated story below we have provided some space for the building of comb, and further, in giving the bees more room for thes torage of honey, we have removed somewhat the factor leading to wax-secretion. A further chance for wax-secretion and comb-building may be given the colony by alternating in the top story sheets of foundation with the extracting combs, a system that may be profitably extended also in some instances to the brood-chamber.

The fourth condition is a restricted queen in ovipositing, which may be due to either an excess of brood in the colony, or a clogging of the brood-nest with honey or pollen, or both. Again, by an excess of brood in the colony I do not wish to be understood to mean actually too much brood in the colony, for a good share of the efforts of every bee-master, when a crop is assured, are directed to devising means for, and bringing about, every favorable condition practicable to promote the rearing of all the brood possible within every honey colony. I wish to be understood to mean an excess of brood for the size of the brood-chamber or space available for the queen to operate in; and the remedy is manifestly to give the queen more room to operate in—either a larger brood-chamber, or more room in the brood-chamber by setting up frames of unsealed brood, or by giving over to the queen an additional story for a brood apartment.

The fifth and last but none the less condition liable to increase the tendency to swarm is the presence in the colony of a queen of a previous year's rearing. I advocate the requeening of every honey colony as early in the spring as possible, with a queen of the current year's rearing, to be not only a necessity for the adequate control of swarming, but an essential of practice indigenous to the highest success in keeping bees for profit.

Crane's Improved Shipping-Case

BY J. E. CRANE.

The problem of shipping comb honey has always been one of considerable importance, it being one of the heaviest and at the same time one of the most fragile of rural products. I will not stop here to tell of the various devices used to prevent breakage. Suffice it to say, that they have all proved to some extent defective, or too cumbrous or expensive fully to meet the necessities of the case.

The packing of 6 or 8 small cases holding say 150 pounds of honey in a heavy crate with straw or other similar material to break the jar, and so arranged with handles as to be readily carried by two men is perhaps the best. Now if the freight should be 50 cents per hundred, and this extra crate with packing weighs 30 pounds more, the freight on this crate would be 12 cents, while the cost of lumber and the making of it would be, say 25 cents more, so that our cost of shipping honey

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would be from one-half to two-thirds more than in single cases. And add to these facts that these crates are of small value, or no value, for reshipping to the

CRANE SHIPPING-CASE OPEN.

retail dealer, unless he wants the same number of small cases as in the large crate, so that we find wholesale dealers crating single cases to their retail customers. And here is where the great-

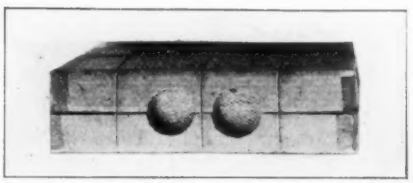
CARRYING CRANE CASE.

est amount of breakage comes in when shipped from the wholesale dealer to the retail merchant.

After studying over the subject for some months I succeeded in assembling a case of corrugated paper that I thought might help us out somewhat, and later ordered 500 of the pattern made by myself. Now I am free to confess that while it had seemed to me for many years that corrugated paper would be a good material for a shipping-case, yet I had never thought one could be made strong enough to answer the purpose. What would happen should they be piled one on top of another, 10 or 12 deep, or if a box or other material should come against one and crush it and the honey in it? I found, however, that by the use of partitions a case would sustain a very heavy weight on top of it, and by using two thicknesses it was not likely to get jammed in at the ends or sides and the honey injured. Each partition also tended to break every jar or jolt, and largely increased the safety of the honey.

However much faith I had in my "improved case," it required a good deal of bravery on my part to fill the 500 paper cases with honey and think of committing them to the tender mercies of the railroads.

An accident as we were filling them, in which a case dropped nearly 3 feet (31 inches, to be accurate), to the floor without injury to a single comb, helped to reassure me. Determined to know the best as well as the worst of these

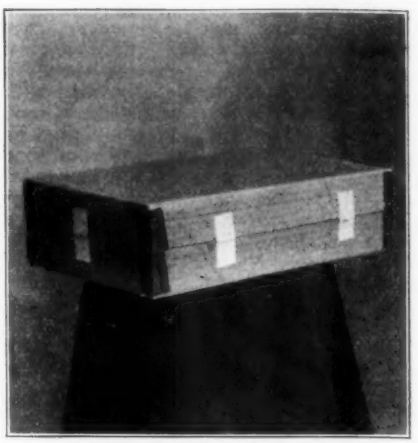


CRANE CASE WITH GLASS.

cases, we shipped 10 with a lot of wooden cases to a customer some 200 miles away, where they would without doubt have to be changed from one car to another at least 3 times before reaching their destination. Our mind was relieved when we heard from our customer that while more or less combs were broken in every wooden case, not a single comb was broken where packed in our "improved case."

Now, I do not wish to be understood that honey will not break in these cases, but that it is much, very much, safer than in wooden cases; so much so that dealers have been very willing to pay extra for the last two years for honey put up in these cases—enough more to reduce very materially the cost of the cases.

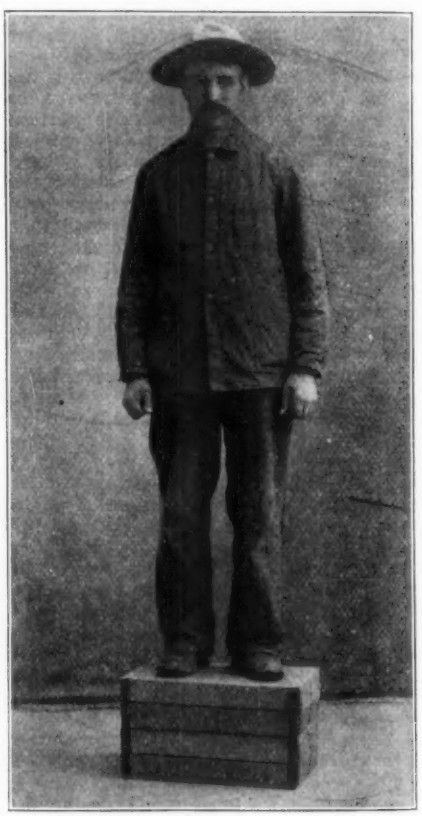
These cases, as we have used them, consist of a frame a little wider than our sections are tall, with a top and bottom that covers the sides and meeting in the middle, while a honey-dripping board goes on the bottom inside, of single-faced corrugated paper, and the inside filled with the partitions that support the top, bottom, sides, and ends, making the case very strong. We have held the top and bottom together with binding twine but are thinking of using paper or cloth stickers. I made some experiments last fall that would indicate that paper stickers would answer every purpose. I found that 2 pieces of strong paper 1½ inches wide, would support a weight of over 60 pounds. And yet we would not advise the use of paper until it has been fully tested. We know



CRANE SHIPPING-CASE CLOSED.

that binding twine is entirely satisfactory as well as inexpensive. The weight of these cases is only about half that of wooden cases with glass, thus saving freight from factory to bee-keeper, and also from the producer to market.

One thing that I fear will prevent



SHOWING STRENGTH OF CRANE CASE.

the rapid introduction of these cases, is that honey in them is not so attractive as in wooden cases, with one side of glass. No honey shows in them, and many persons will fear that their honey

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will not sell unless it shows in the case. While I believe these fears are largely groundless, yet it may at first make some difference. I may say, however, that we Vermont bee-keepers have not been in the habit of using glass in our shipping-cases, or having any honey in sight for the past 15 or 20 years, and yet have not been able to supply the demand. That carriers may know what these cases contain we have always pasted a label on top, stating contents and asking for careful handling. We have used from one to two thousand of these cases with great satisfaction. We were unable to sell, to one wholesale dealer, honey in any other case the past year.

There is reason to believe the use of these cases will largely increase the use of comb honey, as with them it can be cheaply sent to small, out-of-the-way places where it would be impracticable to send the old style of case. So popular have these cases been with bee-keepers and dealers in honey, where known, that there is reason to believe that they will supersede the old style of wooden cases in the near future. Application for a patent has been made. Prices will probably be about the same as for wooden cases with glass.

Perhaps I should add that for those who desire glass in their cases of honey, these cases of paper can be made to take glass by cutting out holes in one side and inserting glass between the two layers of paper that make the shell of the case, thus showing all the honey necessary.

I send photo of a case as I have made it. This does not appear to weaken the case enough to do harm, and removes the objection to a case without glass.

How Far Do Bees Go For Honey?

BY G. M. DOOLITTLE.

"I am greatly interested in bee-keeping, have 2 books on the subject, and take the American Bee Journal. There is very little pasturage for my 42 colonies till the bees go a mile from home, then there is plenty of bee-pasturage for the next 4 or 5 miles in either direction. As I am so environed that I must stay where I am, it will be impossible for me to move to another locality. The bees have done quite well here; but I have been reading in one of my bee-books that bees rarely fly more than a mile to 1½ miles from home in search of honey, and from this I fear, if I increase them beyond what I now have, that I shall overstock my locality and have little or nothing in the way of honey above what the bees consume. I wanted to increase to 100 or 150 colonies, so I write to ask you if you will tell us through the columns of the American Bee Journal what you think I would better do—keep only those I have, or increase as I so much desire to do."

This is a subject which I have written quite a little upon, but as I see the statement again going the rounds of the papers that bees will not go more than 1½ miles to 2 miles from home for honey some even claiming that bees will perish and die for want of food within 3 miles of good pasture, it may not be amiss to say a few words again on the matter, and especially as I am requested so to do.

If bees went only 2 miles in search of food it would take but a limited conception to see that a very few colonies would overstock very many localities where now 100 to 200 colonies are kept. This matter of location used to worry me quite a little when I had from 25 to 40 colonies, and, especially so, as my success with these was so good that first one, then two, and the next year two more of my neighbors went into bee-keeping. The year the first two commenced they came to see me and asked me to help them start; and as I had been helped during my first bee-keeping years by Elisha Gallup, Moses Quinby, and N. N. Betsinger, I thought it only right that I should be as free to give, as I had freely received, so I helped them all I could.

When the next two wished to start, and asked my help, it came to me that Gallup lived in Iowa, Quinby 100 miles away, and Betsinger 12 miles off, so that by helping me they incurred no loss to themselves through a divided pasturage. But here were four of my neighbors, all within less than one mile of my apiary, and one of them joining lands with me, crazy over the bees, from the success I was having, and if I encouraged them, and helped them, they would without doubt soon have apiaries equaling mine as to numbers, and the whole of us would so overstock the pasturage that there would be nothing for any of us, and starvation for the whole lot of bees, unless we fed them, which would be wholly unprofitable for all concerned. It was a sleepless night that I passed, but with the morning, I resolved that, come what would, I would not let my neighbors know of my selfish thoughts, but would help them as others had helped me, even did it prove to my injury.

Lest I forget to touch these neighbors again, I will say that they increased their bees till one counted his at 43 colonies, another 70, another 60 odd, and the fourth 97, while 235 was the highest number I ever had. Many and many a time did we visit the apiaries of each other, and often all five of us make the rounds of the whole. Three of them still have bees, numbering their colonies from 20 to 50, while one, through extra cares, allowed his bees to go down and out.

Soon after the struggle of that night, as Mrs. D. and myself were starting home from church, which is 2½ miles from home, I began to see bees that were loaded apparently, flying with difficulty facing a quite strong south breeze, the church being north of my apiary. It was in time of teasel bloom, and the main teasel fields began one-half mile north of the church, and extended on still further north for 6 or more miles. The nearer we approached home, the more bees were slowly passing us, facing the stiff south breeze; and upon going into the apiary I found the bees dropping down in front of the hives heavily loaded with nectar from the teasel.

A bee that works on teasel gets her abdomen covered with a whitish dust at the tip, this dust growing less and less as it nears the thorax, something similar to the yellow dust on the bee that works in the blossoms of the pumpkin and squash, so that she is readily distinguished from bees that work on other bloom. And as the teasel commences to bloom about a week before basswood, and continues from a week to 10 days after basswood, we have a chance to know by this dust about how the teasel is yielding, and how the basswood is doing. When basswood is yielding so the nectar sparkles in the bloom, as is often the case when the air is charged with electricity, and the weather very hot, then very few bees are seen with dust on them. But in cooler weather, with little electricity, the teasel secretes nectar better, and the basswood less, when the majority of the bees entering the hives are covered with this teasel dust.

Knowing now that my bees were working at a rapid rate 3 or more miles from home, I felt much relieved as regards overstocking, and secretly chided myself for having thought of making a break with my neighbors because they wished to keep bees on my (?) pasturage.

Then the next year I had something which dealt a death blow to the 1½-mile theory, and set at rest in my mind all trouble from overstocking. Seven miles to the southeast of my apiary is a hill which is the highest point in our county, it being nearly 800 feet higher than where I reside. After a distance of one mile there is a gradual rise till the top of the hill is reached. There is from 10 days to 2 weeks difference in the time of all bloom on this hill (and especially basswood) and that at the apiary. After the basswood had been yielding nectar about the apiary for 2 weeks that year, I noticed, that, while the bees were at work as strong as ever, the bloom had all gone from the trees in sight about me, so I began to retrench about putting on more sections, as is usually the case when the honey-flow is likely to come to an end soon. But the end did not come, and as the bees soon became crowded for room I had to enlarge their sections again. This state of affairs kept on for a week, when I went to the first high point southeast from the apiary one afternoon when the breeze was from the northwest, I was astonished by the swarms of bees which were pressing toward the apiary from the hills with their loads of honey.

The next day I drove to the top of the hill and found the bloom on the basswood trees in that fresh, white state which all bee-keepers like to see in hot weather, knowing that when the trees have that whitish appearance they are in the best condition for nectar-secretion that can possibly be. And these trees were musical from the humming of the bees at work on the bloom.

On my return home I kept watch of the fading bloom, and at 4½ miles from the apiary there was no bloom but what was too far gone for the bees to work on. That year I had 28 days of continuous basswood nectar pouring into the hives, and have had other years where the yield was nearly as long drawn out. However, there is one thing I must note, which is, that if a continuous good yield is to be secured at this distance, it is necessary to have continuous good weather, for if 2 or 3 days of rainy weather, accompanied with cold or cool winds, should occur

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when the bloom had receded 4 or 5 miles, thus allowing the bloom to fail for a distance of a mile or so beyond where the bees had last gathered nectar, they would never go to the hill-top, be the honey ever so plenty there.

The solution seems to be that after the rain they go to the trees where they had last procured nectar, and finding none, nor any near by, conclude that the harvest is over, without going over the strip where the honey has failed to that which is beyond. From this, our correspondent and other readers will see that Doolittle would have no hesitancy in increasing bees in the home apiary from 100 to 200 colonies, as the desired number might be; and also that I believe that the 1½-mile-flight idea is also a fallacy.

Borodino, N. Y.

No. 6.—Colorado Bee-Keeping

BY R. C. AIKIN.

I closed article No. 5 with urging strong colonies for comb-honey production, and will repeat the same to start this one. That means that swarming must be kept down, if possible, and there is where we have to hustle.

If the reader has forgotten what I said in No. 3 about swarm control, let him turn to that article and re-read, especially the latter part. There I gave a sure method of swarm control, rather two plans that put the matter under absolute control so that one might know just what he was doing. On pages 57 and 58 of the same issue, wherein is printed my No. 3 article will be found one on the subject of swarm control by Mr. Charles Trout. He writes from California. Mr. Trout gives some good ideas, but in very many places they will not work. We have been for about 30 years talking about breeding out the swarming impulse. I got cured of that false idea about 20 years ago. Bees are going to follow instinct, and that elusive thing—or rather unexplainable thing—is influenced by conditions or environment. You can have bees bred for years without so much as a single swarm for many generations, and then just let the proper conditions prevail and they will swarm good and plenty, and disgust their owner who thought he had bred out the swarming impulse. The swarming impulse lies in conditions under which the colony finds itself, not in the blood of bees that have forgotten how. The *same* bees rarely ever swarm twice, so it is not a habit or anything learned or forgotten.

Mr. Trout speaks of 8 or 9 weeks before the flow having strong colonies, and of the proceeds of 2 queens for nearly 3 weeks, but we cannot have either in very much of Colorado, and I doubt if anywhere in the State. See what I have told along that line in article No. 5.

Mr. Trout tells us that "from 54 colonies run for comb honey I removed an average of 150 pounds of fancy comb honey. There were no swarms, and the season was very poor." Mr. T. starts queens 8 or 9 weeks before the flow. That is fine where it can be done and get good queens, and the cells are placed in nursery cages to develop until ripe. Let me quote again from Mr. Trout from the 4th paragraph, first column, on page 58:

"When the virgins are about ready to hatch" [referring to those previously started and now in nursery cages], "I go through the apiary, giving combs of sealed honey wherever needed, and placing the queen above the excluder. Upon the virgins hatching they are allowed to run in at the entrances of the hives. This is about 5 weeks before the honey-flow."

Now, if the reader will turn to my article on page 52 of the same issue (Feb.), and see the two plans there given and compare them with this of Mr. Trout, you will see that I advocate much the same thing. If only I could have Mr. Trout's conditions I would change my directions somewhat, but I cannot have those queens to run in 5 weeks before the flow, and many times cannot have enough bees to utilize the queens if I were to buy them. His plan is fine where it can be worked, and he can depend on it almost every time under the conditions he gives as prevailing that year. I would warn beginners, and all who will be inclined to take too seriously his statements that his locality is a very poor one. I know enough about bees and honey-flows and localities to know that while his plan is a very good one where it can be applied, it does not account fully by any manner of means for that 150-pound yield of fancy comb honey. It is no ordinary locality, or season, when such an average as that can be obtained.

Notice again that he removes the brood from the brood-chamber, giving instead dry combs or foundation to *the young queen* and takes away the old one. Not only that, but he puts a super over this young queen with her dry combs or foundation, then above this the old brood. He does not say, but I infer that he keeps the queen-excluder down below the super just on top of the brood-nest—at least that is what I would do. Why, that would be almost certain to control swarming in any locality, you can depend on it for *a decidedly workable* RULE. I say "rule" advisedly; there are exceptional cases always, but it is my firm conviction that the plan given above will so nearly approach absolute control that it may be taken as a rule to tie to.

But your location and conditions may not admit of the full application of those principles (rather, I should say *plans*), but any reader will do well to get to the bottom of the facts or factors underlying so that you can clearly discern the whys for the results Mr. Trout obtained. I am putting much stress on this problem of swarm-control for it is vital, and when we get the *principles under our minds' control we are in position to control swarming* in almost any location, or under almost any conditions.

Again, about Mr. Trout's putting the super over that young queen with her dry combs or foundation—no doubt it is foundation when he runs for section honey, then the putting the mass of brood the colony has gotten up to this time above the super—this, too, needs analysis for very many readers, and especially for beginners, else they may make a bad break and say hard words of Mr. Trout and his plan. He tells us he removes that brood from above the sections when the flow starts, for note that the combination was made several days *before* the flow started, and the bees having been passing up and down through that super of sections they are ready to, and will, begin work there at once.

Now, that would be true with such colonies as he must now have as the result of many weeks' breeding with the old queen and supplemented by a young queen for "nearly 3 weeks," as he tells us. I remind you that he has unusually strong colonies, and his bees *must* of necessity go into that super, or get outside the hive to turn around. And not only has he strong colonies beyond what the most of us are able under ordinary conditions to obtain, but he has them of all ages, for note that they have been breeding quite freely for many weeks; he has simply a host of fielders as well as a superabundance of nurses or inside workers. If there is any honey to be had they get it, and if gotten there will surely be work in that super as well as in the brood-chamber. The only thing lacking to make a record-breaking yield and of fancy finish is good weather and abundance of nectar.

But suppose we have all these factors except a lack of nectar, then most of what the colony *does* get will go into that super all right, and there may be some very fair finished sections. Next take away a lot of his bees, reducing them to normal strength and not much flow—simply a normal colony and a moderate flow, and results will not be so good; and, again, with rainy days occasionally, or any other cause that may make the work intermittent, and results are still worse. So we may trace or analyze a little further down, and we may find what thousands upon thousands of bee-keepers all over our land are finding—hard to get the bees into the super at all; or, if there, they will not work in them, or they put all the honey into the brood-combs and crowd out the queen from her normal breeding and the forces of bees from their natural occupations. What else could we expect but that they will get in the notion of swarming, and hunt more congenial conditions in a new home?

Can you grasp these truths? Can you analyze the principles and put them into practice? Can you see that if you get results you must have conditions, and if those conditions do not come you must for yourself make them if you can? Mr. Trout has evidently time and conditions to get a host of bees ready for his flow, then he proceeds to put his colony into a condition—I say *he* puts them into a *condition* altogether against swarming by taking away the brood, and increases that condition by having a *young* queen with them, whereas most natural swarms have an old queen with them.

See that the advice I gave in No. 3, on page 52 for February, was, in one case, to remove all brood but one comb, and the queen, too. Such a plan would work fine in Mr. Trout's case. This puts the colony in a condition that the apiarist has absolute control, for he knows just what they will do in the

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matter of swarming for so many days; and then, by removing all cells but one before they begin to hatch, he has mastered the situation, for by that time there is no condition whatever to cause swarming until they have a laying queen, and brood in all stages, when the honey-flow is over and we have obtained the crop.

The other plan was to remove the queen but leave the brood on the old stand, then in 10 days remove all but one cell. In the first case the absence of all but one comb of brood would call for a mass of bees such as Mr. Trout had, literally a brood-chamber and one or more supers full of them so that they at once do a big business in storing. I say "at once," for this should not be done until the flow is already started; but such colonies will decrease daily in numbers with no brood hatching to keep up the death rate. But if the colony has not sufficient bees, and all the brood is left that thereby the colony may be gaining strength every day from hatching bees, and that the storage room in the brood-chamber be at a minimum so the super will be used, we are just using the same principle of control, but trying to intensify the storing capacity. The whole thing is to get the great mass of workers and hold them together for honey, and if a single colony does not have enough bees the end must be obtained in one of two ways:

We must double up forces from 2 or more hives till we have the necessary numbers, or we must contract the brood-chamber so that the weaker colony can use the super—or, more properly, are forced to use it if they do business in honey. But, in either case, to leave a queen with these colonies, that is, the big one in a normal brood-chamber, or the smaller one in a contracted chamber, brings about swarm conditions, and we lose control. We must absolutely put the colony into a *non-swarming condition first,* so as to eliminate that difficulty; then the next thing to do is to produce conditions favoring getting the stores where wanted and in the desired shape. That means work, and intelligent work, too.

Now go again to that page 52, and read the 3d paragraph beginning, "For those producing extracted honey," etc. There is given a third plan, but really first in order of record. It is to put the queen at the bottom with a minimum amount of brood, the excluder over her, and on that an extracting super of dry combs (even part combs, or foundation or starters will do), and above this put the bulk of the brood from the entire colony. Here we have the entire working force, queen, brood and all kept together, that is, on the same stand and in the same hive. But while the whole force is there, the brood being clear at the top, and so much space between it and the queen, with but little brood with the queen below, produces a *condition* in which the stores will go into that top chamber as fast as it comes in, or there are empty cells to receive it, and the dry combs next below it will be filled first after the top ones have no more room (or foundation or starters worked out if they have been given)—the last place to receive storage except for temporary or immediate use is the bottom body where the queen has been laying at will, and where the nurses and inside workers not needed to ripen, store and build comb above are kept busy.

But this plan is for extracted honey, and for reasons that are obvious not so workable in comb-honey production. For extracted it will get to the front and will give almost perfect control of swarming. If your queens are old, or poor layers at this time from any cause, an effort at supersedure would very likely result in swarming; this again shows the value of having all queens this side of their prime when a honey-flow is imminent or on.

So we see that it is the master who must *master;* if he have all things favorable he can do wonders, but when not favorable he must simply make the most he can out of the material at hand.

But some say when we clip queens or make these forced conditions we take away the energy of the colony, we produce an abnormal state of the colony and lose thereby. Nine-tenths of those who say so do not know the principles governing bees; do not understand at all bee-nature and general natural laws governing insects that do things because of environment and not from reason. No specific rules are applicable except as related to environment.

(Continued next month.)

Food for Queen and Worker Larvae

BY DR. C. C. MILLER.

On page 129 is an article by W. W. McNeal, some of which I do not understand; but if I understand correctly the main drift of the article, it is to the effect that young queens and workers receive the same kind of food while in the larval state, the only difference being that the queen receives a larger quantity than the worker. I think this is the first time that I have ever known any one to take this ground. Indeed, Mr. McNeal evidently understands that his view is against "the teachings of orthodoxy," for he starts out with the assertion that, "Careful research has failed to disclose any evidence to verify the teachings of orthodoxy relating to the food of a queen-larva."

I am not a scientist, and have made no researches relating to the matter other than the observations which any bee-keeper may make; but, Mr. McNeal, if you are going to take ground against all the authorities who have previously expressed themselves, don't you think you ought to give us some sort of proof of the correctness of your position? Please tell us *what* careful research has been made that has failed to verify the teachings of orthodoxy. Even if that be true, is there any evidence that quantity of food alone will make the difference between a worker and a queen.

But what about the researches of Planta and others, whose analyses show distinctly that after the third day the food of the worker-larva is quite changed in character, while the royal larva continues to be fed throughout with the same food it received during the first 3 days? So far as I know, this has been accepted as correct until the appearance of your article. Surely, you ought not to expect us to throw it all aside and accept your view without telling us what later research had failed to confirm previous research.

For the sake of the younger readers it may not be amiss to say what "the teachings of orthodoxy" are. Put in a very few words, a larva intended to become a queen is, after its first 3 days' existence as a larva, fed abundantly with a different food from that given to larvæ that are to become workers. Perhaps the average bee-keeper who holds this view would not be ready offhand to say whether he thinks the quality or the quantity of the food is the greater factor in the matter of queen-making.

There is no difference of opinion as to the food of the first 2 or 3 days. It is the same, whether fed in a queen-cell or a worker-cell, only a larger quantity is put in the queen-cell. Does that larger quantity make any difference? Without referring to the scientists, we common bee-keepers can answer that question pretty well. We know that a worker-larva, taken any time before it is 3 days old, can be made into a good queen. That seems to show that there is no difference between a worker-larva and a queen-larva during the first 3 days. During that 3 days the larva in the queen-cell has a greater quantity of food placed beside it, but that greater quantity can make no difference, since there is no difference.

After the first 3 days the worker-larva is weaned, that is, it has fed to it a coarser food, not so fully digested, while the food of the royal larva remains unchanged. That abundant feeding of a better food for the remaining time of some 3 days before sealing makes the difference between the worker and the queen. Is it the abundance of the food, or is it the quality that decides? More food is put in the queen-cell usually than the larva can consume, for we generally find quite a quantity of royal jelly remaining after the young queen emerges; indeed it would seem that the abundance of food given to a royal larva over and above the amount fed to a worker-larva mostly goes to waste, being left to dry up in the cell. As quantity of food made no difference in the first 3 days, and as most of the extra quantity during the remainder of the time is not consumed, does it not look as if quality had more to do with the matter than quantity? Indeed, if one should say that quality had everything to do in the case, and quantity nothing, it might be hard to disprove it.

I think there are many who will watch with interest for Mr. McNeal's proofs for his belief.

Where to Put Bait-Sections.

Generally I have given to each super a single bait-section, and that in the center of the super. Sometimes the bees have begun on a super toward the close of the season, filling some of the central sections half full or less, taper-

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ing out to raw foundation at the outside. These are given to the bees to empty out after the end of the flow, and a super of this kind is nicely baited to be given for the first super the next season.

While I have never, to any extent, given bait-sections other than in the center of the sections, I think I have sometimes advised, "If you have abundance of bait-sections, put one in each corner of the super." It stands to reason that if the bees begin at the corners, where they are the last at finishing, there ought to be more even work than if the start is made at the center. But sometimes our reasoning doesn't agree with that of the bees. Here is a letter from a man in whom I have much confidence:

> I notice in your answers to some questions in the American Bee Journal that you seem to be in some doubt as to the best place to put bait-sections in the supers. I had some experience last season that leads me to believe that the best place for them is in the center of the super. In some supers in others I put one in each corner and one. I put one bait-section in each corner, and or two in the center. The baits in the corners seem to have the effect to divide the working force too much, drawing it away from the center where it naturally belongs. In some instances the bees would begin work on the baits in the corners, and then leave them and finish up the two sections with starters between the two baits on each side of the hive before finishing the corner baits. In some instances the corner baits were not finished at all. Some I found with no honey in them when the supers were taken off, while every other section was completed.
>
> After this I shall put my baits in the centers of the super, be they few or many, and leave the bees to do the work in the corners when they get ready. It is no great matter if there is some uncompleted work in the corners. The finishing can be done elsewhere. EDWIN BEVINS.

A pint of experience from a man like Mr. Bevins is worth more than a bushel of theory, and thanks are hereby given him for his letter. The center is the natural place to begin work in a super, and the unfinished sections at the outside can easily be assembled in another super and given to the bees to finish.

Marengo, Ill.

By W. A. PRYAL, Alden Station, Oakland, Calif.

Weather Extremes—Swarming.

It seems that it is either a feast or a famine in California, at least in a goodly portion of it. Take for instance the matter of rain. For the lack of this heavenly fluid, we are often thrown on the verge of a real famine; perhaps there would be a dearth of eatables if it were not for the fact that some of the river districts and those sections that can be irrigated from the melting of the perpetual snows in the high mountains, and produce abundantly of the good things of the earth, even in the dryest years. But what if two or three dry years should follow each other and there were no snowfall in the mountains? We have had such years and still there was water from the snow-springs up in or near the clouds, but of course not so plentiful as in years of abundant rainfall.

All this may be neither here nor there; the subject, however, was brought about by the fact that the winter and early spring was about one of the wettest we ever had. And yet looking back from these closing days of April, I can say the month was about the dryest we ever had. Rain is greatly needed to freshen the earth and invigorate all surface-rooted vegetation, for much of it is suffering for the need of sufficient moisture. And the month has been a hot one, too. Hay has gone soaring around $30 a ton; potatoes are $2 a hundred weight, and will be higher, as we of this State are being called upon to furnish the succulent tuber to that renowned "spud-country," Oregon. The crop in the latter State is said to have been a failure—how, I have not heard.

But while all these divers calamities worry the average agriculturist, the bee-keeper wears a more happy smile. The rain was sufficient without anything additional to guarantee a good growth of nectar-secreting plants. And the condition of the weather, at least for this portion of the State has been ideal. So, on the whole, we are looking for a big crop of honey. I can say that for the past 2 weeks my bees have been doing wonderfully well. Some of the colonies were in full swing over a fortnight ago; the first swarm issued Sunday, Apr. 11. A couple of days I had to be away and I believe a few swarms came forth, and I further believe, "lit out" for parts unknown. But when I am home it is a wise and cunning aggregation of bees that will get away from me. (And I have to confess that one swarm did get away, but I am inclined to the belief that it was a truant swarm that came to the apiary, lit well up in a tall tree during the noon hour, and while I was at lunch hied themselves away.)

The 19th was the "swarmiest" day I ever had to contend with; and I verily believe it was the warmest April day that I ever had to swelter in. Talk about fun! Fun with a vengeance! On our place there is much to do. We have a sort of general fruit-farm, garden, and I might say, the Lord knows what not, but I won't. And yet it is a pretty place, and an interesting one. So with all the things to look after and do, it is no small task to play second fiddle to the bees. And how they hummed, and buzzed, and cavorted that day; and they commenced bright and early, as they early divined what the day was to be. Everything went along well enough so long as one swarm came out and got settled and fairly hived, before the next one came upon the scene. But along toward noon, they came forth fast and thick, and the fun or deviltry began. But fortunately none of them were of stinging mood, so I did not mind it so much. It was the heat and the anxiety to keep those swarms separate that bothered me.

And funny things happened. I had one big swarm nearly hived beneath the cherry-tree it alighted upon, when out came a swarm from a large 3-story hive. I saw what a pickle I'd be in if those two came together, I had the half-hived colony on a large cloth, so I folded it over the hive. But those bees began to pile upon the cloth and many were crawling through the folds, when I gathered the outfit up and placed it to a permanent stand in the apiary. I paid no further attention to this latter swarm for a half hour when I went over to see about hiving it. I imagined the bees were somewhere in the branches of the tree. But nary a bee was there. But I saw some bees flying about beneath the tree, and some hovered near an old bucket that was formerly a coal-oil can. Lo! and behold, if my swarm had not entered the can and seemed to be as happy as a clam at high tide. And such a snap it was for me to hive it. I stepped over, took hold of the pail's bail and walked off with a big bucket full of live bees. I sat it on top of a hive for a few minutes, secured my camera, and while they looked their prettiest, (unfortunately mostly within the can,) I took their picture. I am sorry I can't show it to you, for 'tis yet undeveloped. Well, it was a mere "pudding" to get that pail full of bees into a hive I prepared for them right on the stand they were to occupy thenceforth. Swarming would be an easy matter if all bees had such horse-sense!

Then, another time, when I was operating on a colony, to relieve it of a bad case of "toomanyqueencells," out of a hive close by began to come a swarm. My head began to swim, figuratively, for it seemed that swarms were in the air, and swarms were everywhere. But my wits did not forsake me, nevertheless. My first impulse was to nab the queen as she came forth. (I have not practiced queen-wing-clipping these many years, though when I did it was made an easy road to this matter of capturing swarms).

Well, as I was about to remark, the queen was just a fraction of a second too previous to me; I saw her take wing before my fingers could get half way to where I saw her at the edge of the alighting board. Then, I grabbed a piece of a shingle near by and jammed it into the entrance. Most of my hives have entrances only ⅜ of an inch high and from 6 to 12 inches long. The shingle only contracted the entrance and but few bees could get out at a time. Then I blew in quite a lot of smoke—

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more than I should otherwise. Then I removed the shingle. The result of all this work, which was done in about a minute, was that that swarm did not get busy in the air that day; it just clustered on the front of the hive for an hour or so, and then resumed the even tenor of its way. Just imagine the time I would have had if that swarm commenced to alight among the bees of the colony I was manipulating! No patent; help yourself. Never mind the thanks.

What I have so imperfectly narrated above is but a fraction of the work I had to do this one hot day in April. Several days later—the last day of the month—was another hot day, but I had only one swarm to deal with.

Here I will state that I have been fortunate during my long course of bee-keeping to keep down swarming to a minimum—some years getting none whatever. Early in the season I make what divisions I care to have, and manage so as to have these new colonies as strong as any in the apiary by the advent of the main honey-flow, which is about the time swarming is usually expected. This year I found that some of these new colonies I prepared got so strong that some of them cast swarms as soon as some of the colonies that had not been divided.

As a contrast to the summery weather we have been having, I can not help but make note of the other extreme that is prevailing at this writing, in the East and Middle West, for I notice that the papers are full of accounts of blizzards, snow storms, and killing frosts that have prevailed there, while we were wearing summer clothing. But as comparisons are said to be odious, I forbear to make further remarks on this subject.

Benton's Bee-Bill Beaten.

The bill framed by Mr. Ralph Benton, of the University of California, for the purposes set forth by him in the April number of the American Bee Journal, died "a-borning" in the hands of the committee of the branch of the Legislature in which it was introduced. This is something of a disappointment to that energetic young gentleman. He spent much time, energy and money in getting the proposed bill in shape, and getting it before various meetings of California bee-keepers for their approval. In this way he received much valuable information and many timely suggestions as to what our bee-keepers need most in bee-disease legislation. I am afraid that the fact that the proposed bill seemed to savor of being another of those University measures that are every once in a while sprung on the people, helped kill it. It would be well, I think, to get at the proposed plan in another way. Have a good bee-disease law drafted and adopted. The matter of placing certain powers in connection therewith could be made a part of another provision to be framed, or as an amendment to some bill now in force, whereby the entomological department of the University of California, or say, the Experiment Station of said University, would be constituted the pathologist of the bee-disease inspectors, with increased pay for such additional work, if need be.

As the matter stands I am sorry that the bill was not adopted, for as I have heretofore stated, I should like to see how it would work.

Here I will state in answer to Mr. Benton's article in the April issue of this paper, that when I saw the bill, it was much different from the way it was sent to Sacramento; that my remarks were aimed at the bill as I saw it, and I still believe that my remarks were timely and to the point, and I am sure Mr. Benton will agree with me. But the matter is dead now, so let it rest in peace.

Monterey County Bee-Keeping.

A good many have been inquiring about Monterey county as a profitable place to locate an apiary. Personally I know little of the county, but I have heard much of its wonderful resources. The coast-line of the county is partly on the Pacific ocean and partly on Monterey bay; thus it has a cool but not cold climate on the west, and in the interior it is very hot during the summer and early fall. At the bee-institute in the quaint little city of Monterey at the close of last year, I had the pleasure of meeting a number of the progressive apiarists of that county. In a letter I had from Mr. Vernon Townsend, the tall "eucalyptus" of Soledad, that gentleman gives such a faithful outline of his beginnings in bee-culture and his remarkable success since he pitched his tent and "planted" his bees in Monterey county, that I reproduce the major portion of it here for the benefit of the readers of the American Bee Journal. I might state that a fairly faithful representation of the athletic figure of Mr. Townsend may be seen in the February number of this paper; a view of his apiary is shown here.

This is what Mr. Townsend modestly says of his bee-keeping:

I am a native of Australia. I came to this country 12 years ago, intending simply to have a trip through America and return to Australia, but on seeing a large apiary in Santa Barbara county, I got so taken with the business that I decided to learn it and start for myself. I worked with some of the largest bee-men in Santa Barbara, Ventura, and Kings counties, to learn the practical work and different methods, and 4 years after coming to the country, I bought 200 colonies of bees, and located in the Santa Ynez Mountains, back of Santa Barbara. The 3 seasons I was there were very bad, each dryer than the preceding one, and I produced no honey at all. So I got discouraged of ever doing much there. I then moved up into Santa Cruz county, back from the Coast. I stayed there 2 seasons, but the bees did poorly, as the fogs and cold weather prevented them from doing much work in the spring when there was abundance of bloom on everything—sage, buckeye, manzanita, madrone, holly, cascara, and several other blooms—and by the time the weather did get warm enough, everything was through blooming.

Three years ago, I came down here, after looking over the northern part of the State, even as far up as Klamath. I came here with 150 colonies of bees, produced 10 tons of honey that year, and increased to 200 colonies. The next season I produced 25 tons and increased to 300 colonies. In 1908 I produced 5 tons, and did not increase at all. I think one can produce some honey every year in this section, and I think in the very worst of years the bees would make a living, although we would never make as much as they do down South in the very best of seasons. Still I think one would average better taking one year with another here.

There is really a better bee-country back from King City, and over towards Coalinga, but there are several men in the business there. Here I have no one to conflict with, and eventually hope to have a long string of apiaries. There are larger patches of sage in that country above King City, and more bees could be managed in one yard. They also get more rain there. But when it is a dry season they have no fogs to help them out, as no fog ever gets up as far as that. Here we get fogs all through the spring, as late as July, which drift up at night and clean down the valley toward Salinas, about daylight in the morning. These fogs freshen up the bloom most wonderfully.

I am really only just beginning in the bee-business. I have had much bad luck as the above shows, but as I am only 34 years old, I think I am good for a few years yet, and am just as enthusiastic as I ever was.

VERNON TOWNSEND.

APIARY OF VERNON TOWNSEND, SOLEDAD, CAL.

American Bee Journal

Send Questions either to the office of the American Bee Journal or to
DR. C. C. MILLER, Marengo, Ill.
Dr. Miller does *not* answer Questions by mail.

Sticking Labels on Tin.

How do you stick labels on tin cans? I don't seem to be able to make them stick.
MINNESOTA.

ANSWER.—The favorite way is to have the label pass clear around the can and overlap, in which case any common paste will answer. I'm not sure about it, but I think flour paste with cold water sticks to tin.

Granulated Combs of Honey.

Please advise me what to do with a lot of clean, straight 8-frame hives that have all the honey in the combs granulated. Only part of each frame is full. The rest is empty cells. Will this granulated honey be a waste? Will the bees use it up? They weigh from 15 to 40 pounds for each colony. Will it do to hive swarms on these granulated combs.
NEW YORK.

ANSWER.—Spray the combs with water, preferably warm, and give them to the bees. When they are cleaned out dry, spray them again until all is cleaned up. If there are no neighbors' bees to share the spoils, you can make a quicker job of it by setting the frames out where the bees can rob them out. They will be all right to give to swarms, only there will be waste if the candied honey is not wet, and you can not well wet the combs after the queen lays in them.

What Became of the Queen?

Why did one of my colonies of bees go wrong? I doubled a light one, or set a light one on a medium heavy one when putting them out of the cellar in the spring. The lower hive had a queen. She went up into the top hive and made a lot of brood, also in the lower hive. It appeared to be the strongest colony I had. I went to it the other day to get a frame of brood to test another colony, but was surprised to find no brood nor eggs nor any signs of a queen. They are starting a queen-cell on the brood I put in. Will it make a satisfactory queen? The cell is not very large. IOWA.

ANSWER.—If I understand correctly, you found plenty of brood in both hives after they were put together, so that it appears the queen was all right for some time after the uniting. It is possible that at the time you looked to find this brood, you may have accidentally killed the queen in shoving the frames together. Not very likely, however. It is possible that after you closed the hive the bees took offense and balled the queen, killing her. Some object to much opening of hives in spring on this account. It is also possible that the queen just naturally played out and the bees were trying to supersede her. Queens generally play out at or about the close of harvest, but sometimes in spring. The queen they rear may turn out good, but generally a queen reared so early is bad.

Taming Cross Bees.

1. I have a colony of bees that are very cross, and one that is very tame. How could I introduce a queen from the tame colony to the cross one so as to make them all tame? And at what time ought I do it?

2. As I am a beginner I would like to have your opinion as to whether the chaff hives are better than the single-board hive?
OHIO.

ANSWER.—1. Rear a queen from the better stock, kill the objectionable queen, and introduce the new queen in an introducing cage. Or you may do another way. Take 2 or 3 frames of brood from the good colony, put them in an empty hive, fill out with empty combs or frames filled with foundation, and set this on the stand of the bad colony, moving the bad colony to a new place close by. Now lift out 2 or 3 frames from the bad colony (be sure you don't get the queen), and shake the bees from these frames into your new hive, returning to the bad colony its 2 frames of brood. In something like 2 weeks there ought to be a queen laying in your new hive. You can strengthen it by adding brood and bees from the bad hive, or you can unite with it all of the bees and brood, killing the bad queen 2 or 3 days before uniting. Perhaps you would like to have 2 colonies instead of one. In that case kill the bad queen a week after the first move, and 2 or 3 days later exchange one of the 2 frames in your new hive for one of the frames in the bad hive, making sure there is a cell on the frame, and also on the frame you leave.

2. Nowadays the tendency seems rather toward the single-walled hive, with protection for outdoor wintering.

Cyprian Queens.

Where can one get Cyprian queens?
ILLINOIS.

ANSWER.—I don't know. If any one has them for sale, one would think an advertisement of them would appear by the time this gets into print.

Two Queens in One Hive.

To increase a colony more rapidly, would it be possible for me to put 2 queens, each having a 2-frame nucleus, with a division-board between, in one hive, and later, as the queens filled their frames with brood, take away one of the queens, and by thus doing, unite the two? A SUBSCRIBER.

ANSWER.—If I understand, your idea is to have two queens at work while the colony is weak so that you may the sooner have a strong colony. It won't work. The two nuclei with two frames of brood each will not build up as fast as one queen with four frames of brood. For a single queen can lay eggs faster than they can be cared for by the bees until the colony is strong enough to cover a good deal more than four combs. Some queens can keep 12 to 15 frames of brood going.

Foul Brood — Winter Size of Hive-Entrance—Bees Stinging Some People.

1. Ought I to use brood-frames which contain perfect combs, i. e., those showing no signs of foul brood, if purchased in a lot of hives, part of which I suspected were infected?

2. Would there be danger of introducing foul brood from using the supers from these hives containing the sections?

3. Would it make any difference if empty comb were built in the sections, no cells containing honey.

4. What size entrance for wintering do you consider best for an average colony in an 8-frame well-protected hive wintered out-of-doors where the thermometer ranges from 12 degrees below to 55 degrees above?

5. Would it be better to clear the snow from the entrance after each storm that blocks it, or leave the snow and clear only when there is danger of the hive becoming sealed by ice or sleet storms?

6. Do your bees know the difference between you and another person when they are in a stinging mood, neither person having angered them?

7. Are there persons whom bees seem to hate worse than an average person?

8. If so, can you give any reason for it?
MAINE.

ANSWERS.—1. There is danger. Don't use them unless you keep close watch.

2. I'm not sure there's any danger; certainly very little.

3. That would probably make no difference. And yet foul brood is such a dangerous thing to have anything to do with that I would hardly want to have in my apiary a bee journal containing an article on foul brood.

4. Views differ; perhaps 4 inches by ⅜.

5. It may be as well to leave it, so long as the air can work its way freely through the snow. Yet if the snow be very deep, some have reported trouble from too great warmth.

6. I don't suppose they do.

7. Yes.

8. Like enough the difference in odor. Some people have an odor that you can smell. Bees may have such a sharp smell that they can smell odors imperceptible to you, and the odor of some people may be very objectionable to them.

Getting Honey to Granulate.

Under what conditions can extracted honey be most quickly crystallized, or candied, so that it can be sold in paper packages? I am not engaged in bee-keeping, and haven't much literature on the subject. CALIFORNIA.

ANSWER.—In Europe, where there is more desire to have honey granulate than here, they stir the honey occasionally. Mixing a little granulated honey with the liquid also helps. There is a great difference in the kinds of honey. Some honey begins to granulate as soon as extracted, while other honey may remain liquid a year or more.

Rearing Queens—Caucasian Bees.

I have held back long enough. I must out with it and ask a question about rearing queens. I have been working with bees now for 4 years and have 25 colonies. I have spent a good deal buying books about rearing queens, but have never reared a queen. Now no doubt all small dealers would like to know what I am about to ask, that is, how to rear a few queens for home use, without having to transfer larvæ or working with cell-cups, and so on. I believe I will put my question in this form—I will outline a plan given to me by a friend which I tried but failed.

1. I am using the Hand sectional hive. He told me to take a strong colony, put most of the brood above an excluder, and after 10 days take the lower part of the hive to a new stand. Now prepare some little sticks of wood ⅝ of an inch square by 2 inches long; tack a little piece of tin across the end so as to hang them in a frame prepared for them. In this way instead of a top-bar tack some little thin pieces say half-inch wide, on each side of the end-bars, so as to form a top-bar having an open space to hang the blocks of wood in. Now take from the hive you want to breed from a piece of comb containing eggs, split this comb up in a little pieces that will contain one or more eggs. Having your knife sharp, and warmed over a lamp, trim the cells so they will be shallow. Now with some melted wax stick these little pieces on the end of the blocks of wood, and hang them in the frame. Now go to this prepared hive, take out one side-frame so you can spread the frames in the center, then hang in the frame with the eggs on the blocks, seeing first that there are no queen-cells started. In 16 days you will have queen-cells.

Now, what do you think of this plan? If they would use them and make cells it seems to me it would be a nice and easy way to handle them, one could handle them on the sticks very easily, or they could be protected by a cell-protector and introduced where you want them. Do you see any serious fault with this plan?

I have your plan given in the Journal of June 20, 1907; I cut it out, as I thought it was the simplest plan I ever saw.

2. I read the piece, "Good Caucasians," in the last Journal. Now it has just fired me up again to Caucasian all my colonies. I have bought one Caucasian queen. It seems to be the most active colony that I have — the only one that has swarmed; they all went

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back into the hives. I gave them a super and they have gone to work. Would you advise me to rear queens from this one, or buy full-blooded ones? Of course the queens I would rear from this one would be only half-breeds, as they would mate with drones that they chanced to meet. VIRGINIA.

ANSWERS.—1. At the risk of being accused of getting in an advertisement here, I cannot help wishing you had got a copy of my book "Forty Years Among the Bees," and followed the plan there given. Still, on page 551 of the number you mention is a succinct statement of the plan, which I advise you to follow. The plan you outline may work out all right, but the plan I give is, I think, simpler, and I suspect you will be more successful with it. There is a point, however, that should be mentioned. You are told to give a frame with one or two small starters to your best queen, in order to get a frame of virgin comb with eggs and young brood to be used to get good queen-cells. If your best queen is in a strong colony it is likely that a large part of the comb built will be drone-comb, possibly all drone-comb, and you can rear good queens from drone-comb. To make sure of worker-brood, let the frame be filled with worker-foundation. A better way, however, is to keep your best queen not in a strong colony, but a colony or nucleus having only 2 or 3 frames of brood. Then the bees will build all worker-comb with small starters. Another reason I keep my best in a weak colony is that she may live as long as possible, for in a strong colony she will wear out sooner than in a nucleus. My best queen, so far as I now know, was reared in 1906, and her colony will not be expected to produce any honey this year, for I want her to live till next year if she will be so obliging. Of course, I may not want to use her another year, for I may happen to have a better queen then.

2. It will be perhaps just as yell to rear queens from the Caucasian queen you have, for even if you get all pure queens you will have mixed stock in a year or so. Then if you decide you want to keep the Caucasian stock you can get a new queen another year. It may be well for you not to be in too great haste about deciding as to the merits of Caucasians, so long as views regarding them are so conflicting.

Getting Straight Combs.

How do you get straight combs built? Last year I used full sheets of foundation. The frames were wired with 4 horizontal wires. Almost every one "buckled" between the wires, and they are a bad lot of combs. KANSAS.

ANSWER.—I wonder if you didn't depend entirely on the wires. The foundation should be fastened securely to the top-bar, either by means of the kerf and wedge, or what some think better in a very dry climate, waxing the foundation to the top-bar, that is, running melted wax along the edge of the foundation on the top-bar. But you will probably have less sagging of foundation if you use foundation splints that have been heretofore described in these columns, as well as in the book "Forty Years Among the Bees."

Porter Bee-Escapes—Killing Bees in Manipulating—Honey from Box-Hives Into Sections.

1. Will queens and drones pass easily through the Porter bee-escape?

2. Does the Porter bee-escape often get clogged up with bees trying to carry out dead bees, larvae, etc.?

3. I can not yet avoid killing from one to 12 or more bees at each opening and closing of hives. About what is the average number of bees killed at each manipulation by the average experienced bee-keeper with say 100 colonies?

4. What is the color of locust honey?

5. On a Friday 2 swarms came out together and formed one cluster. I prepared 2 hives and put a frame of eggs in each. I divided the cluster between those 2 hives and each got a queen the following Sunday morning. The bees in one of the hives dragged out the queen nearly dead. I rescued her, and whilst in my hand she deposited an egg, so she was the old queen (one of the swarms was an afterswarm). The swarm then started queen-cells. Why was the queen killed after she had been with the swarm two days?

6. Is there any plan whereby the bees can be induced to transfer the honey out of a box-hive into sections? CALIFORNIA.

ANSWERS.—1. Yes; although not quite so easily as workers.

2. Yes, although there is not much chance for it. Dead bees are not likely to be in supers, neither is brood often present.

3. Not easy to say. By being very careful one might manipulate 100 colonies without killing a bee. But it hardly pays to go so slow as that. Perhaps 100 bees would be killed in the whole lot. But that's only guessing.

4. I don't know.

5. It is not so very uncommon to find bees hostile to a queen and yet not actually kill her for 2 days, or even a week.

6. I think some have claimed to succeed by setting the hive over the sections until well occupied with bees, and then setting the box-hive away some distance with the entrance large enough for only one bee at a time. I never made a great success at it.

Sweet Clover Not White Clover.

In reading American papers, I observe frequent references to sweet clover as a plant for bee-pasturage. Is it the same as white clover (trifolium repens perenne) which is the staple bee-pasturage here during the summer months. NEW ZEALAND.

ANSWER.—Oh, no, it's an entirely different thing, growing sometimes to the height of 8 or 9 feet, although 3 or 4 feet is a more common growth. The most common sweet clover is *melilotus alba*. It is a biennial, coming from the seed one year, blossoming the next, and then dying root and branch. I don't know how much more nectar an acre of sweet clover would yield than an acre of white clover, but should guess at least 5 times as much. Even if bees have all they can do on white clover, sweet clover is valuable, because while it begins bloom later than white clover it continues much later, even till frost.

There is a yellow sweet clover which blooms 3 weeks earlier than the white. Sweet clover will grow where scarcely anything else will, as in a clay bank. It seems to flourish best, or at least to start from the seed best, on hard ground trodden by farm stock.

Queen-Cell Cups and Swarming—Washing the Extractor—Smoking Bees.

1. In manipulating my colonies this spring, swarming has received more than usual attention, and this question has presented itself quite often: Does the presence of queen-cell cups without eggs or brood always indicate a desire to swarm?

2. How long may an extractor remain without washing? That is, how long may the extractings be apart without injuring anything.

3. In Gleanings, page 250, E. D. Townsend says that when the bees get stirred up and a good many of them in the air, "we alternate between smoking the bees in the air and those in the hive until most of the flying ones have settled down." Now, how does he smoke the bees in the air? It seems to me one might smoke quite a little while without getting much results. Do *you* smoke those in the air? CALIFORNIA.

ANSWER.—1. No.

2. I don't know. I think in some cases harm might be done by leaving an extractor daubed for 24 hours. I know that in some cases a week or more will do no harm. Perhaps the kind of honey or the condition of the atmosphere makes a difference.

3. Yes, I've smoked bees in the air. When a cloud of cross bees surrounds you, charge upon them with a heavy smoke, and you will find it helps.

Swarm Management — Best Bee-Book—Georgia for Bees, Etc.

1. This is my plan. Am I right or wrong? I have 12 box-hives. I am going to let them swarm naturally and put the new swarms in dovetailed hives (8-frame), and run for comb honey. I am going to keep the box-hives to supply me with swarms, and do all I can to prevent the colonies in the frame-hives from swarming.

2. One of my box-hive colonies died and I cut out some of the nice combs and stuck them in the frames of one of the new hives, thinking I would give the first swarm a good start and soon have a super of fine honey. The first swarm came out April 15, and it was a large one. I think there must have been a peck of bees in that swarm. I was overjoyed. So I set about and quickly had them hived; but alas, my precious bees spent just 2 hours with me, when they came bulging out. I threw sand, beat pans, but nothing on earth could stop the onward rush of those absconding bees. So I said, 'So long," and let them go their way. I had plenty of foundation, but I thought the combs would be better. I examined the hive after they left and found that they had torn down every piece of comb. Please show me my mistake.

3. Will 2-inch strips of nice combs in the super answer as well as foundation? What is the best method of sticking them in?

4. Are supers ever left on the hives in the winter?

5. I notice in some of my hives that 5 or 6 bees get in the hive-entrance and seem to stand on their heads and make a buzzing noise, and they won't move for anything. The bees can run right over them but they are stuck right there, and keep on buzzing. What makes them do that? and what does it mean?

6. What bee-book would be best for me (a beginner) to get?

7. Do you consider middle Georgia a good place to keep bees for profit? We have no clover, but we have about everything else. The season opens here the first of April, and lasts until the first of September.

8. By using a one-inch strip of foundation in the brood-chamber and supers, should I expect to get one filled super from each new swarm? GEORGIA.

ANSWERS.—1. Your plan is all right. If you desire to have only one swarm from each colony, getting honey rather than increase, set the swarm on the stand of the mother colony with the latter close beside the swarm; and then a week later move the old hive to a new place.

2. You were right in thinking the swarms would like good combs better than foundation. If you had given them clean combs well fastened in the frames the result might have been very different. The likelihood is that the combs were not fastened in the frames very well, and that you didn't give the bees as much air as they ought to have had. The swarms being strong, there was much heat in the hive, the combs tumbled down, and the bees decided they would leave such an uncertain habitation.

3. Yes. Have a dish of melted wax; dip one edge of the comb in the wax, and then stick it where you want it to stay.

4. Yes, but you should never leave a super of sections on after the harvest has closed. They will be darkened by the bees.

5. Those bees are ventilating, and you can't do anything for them.

6. "Root's A B C and X Y Z of Bee-Culture," Dadant's "Langstroth on the Honey-Bee," and Cook's "Bee-Keeper's Guide," all are good.

7. Some bee-keepers do very well in Georgia.

8. In a good season you might do better than that if you do as directed in Answer 1.

Brood Killed by Heat.

In answering my question in the American Bee Journal you asked me if I had ever known bees to allow the inside of a hive to become hot enough to kill the brood. I have. It was the middle of last July. The hives (3 in all) were double-walled ones, 2 stories high, and painted a walnut color. I was trying to introduce a queen to one of the colonies, and the hive got hot enough inside not only to kill a good bit of the brood, but it also killed the queen and her escort bees. It also drove nearly all the other bees outside the hive. I opened the hive at noon on this particular day to see how the queen was. I found nealy all her escort bees dead, and herself nearly so. She died before night. I took some of the combs out to see how things were inside the hive. As I lifted one comb out I saw young larvæ leave the bottom of the cells, and travel as fast as they could for the entrance to the cells. Some came clear out, while others came only part way out. Some of those that remained in the bottom of the cells died, as well as those that came part way out. And more or less of that which was sealed over was also killed. The bees did not remove a good share of the dead brood before it rotted. It was rotten or nearly so, by the next afternoon, and the bees refused to touch the nasty stuff. They dried up to nothing but dark spots some on the bottom, the sides, and some in the bottom of the cells. I had never had a case of foul brood, and knew nothing about it except

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what I had read. But I was afraid of that rotten stuff. I looked at the bee-books and papers to see if I could find the causes of foul brood, but did not get much satisfaction. So there was nothing to do but destroy the combs, or leave them alone. If I destroyed the combs I would learn nothing. But if I left them alone I would. I decided to leave them alone, and learn from experience. And if need be, pay for my knowledge. And I paid.

I had only 4 colonies, and I lost 3 out of the 4. The fourth colony was in a single-walled hive, and painted white, and stood the heat all right. When the bees tried to rear brood in those combs again dead brood appeared in scattered cells. Some died before being sealed, others after. As the season advanced the amount of dead brood increased. And the strength of the colonies diminished until at the beginning of winter but few bees were left in either of the hives. And they died the first of the winter. I have not destroyed the combs yet, but intend to do so. They are where no bees can get to them. I thought before destroying the combs I would try to find out whether it was foul brood. And in about 2 days after this letter is mailed I intend to mail a sample of comb and dead brood to you to see what you think about it. When you receive it do anything you have a mind to with it, and then let me know whether it is dead or foul-brood. If it is not, it is not one whit better. What's in a name, anyway? "A rose by any other name would smell as sweet." Whatever it is, it was caused by the brood that was killed by the heat. And that is one thing about it that I am sure of. The brood was perfectly healthy and all right before being killed by the heat. MICHIGAN.

ANSWER.—I've had combs melt down in hives, but never brood killed by the heat. It may, however, be more common than I think. I am also surprised that the bees did not clean out the dead brood. As the brood was rotten, or nearly so, by the next afternoon, it could hardly be that this was caused by any contagious disease, provided the colony was healthy before the roasting, for it is not likely that any disease could develop so rapidly.

The sample of dead brood sent has come to hand. You ask me to let you know whether or not it is dead. I am strongly of the opinion that it is. It has the appearance of being very dead. As to whether it is affected by foul brood or something equally as bad, I don't know. As I have repeatedly said in this department, I'm not an expert on bee-diseases. I think I'll send it to General Manager N. E. France and see what he calls it.

But supposing it is a case of foul brood, that doesn't prove that foul brood could result from dead brood killed by heat. There is the possibility that there was some source of contagion within reach of your bees. It would be hard for you to be positive that no diseased colony was within a mile or two. Still harder would it be for you to be certain that there was no case in which some one had brought honey from a diseased colony perhaps a hundred miles away, some of this honey being where your bees could get it. At any rate, the authorities tell us that rotten brood will no more start foul brood without the seeds of the disease than a field of corn can be started without any corn as seed.

Later—I sent the sample to Mr. France, and his reply is: "Any one with such combs should at once write Michigan Inspector, R. L. Taylor, of Lapeer, Mich., to call at once." So I suppose there is no doubt that the brood is not only dead but diseased. But, as before intimated, that's no proof that killing the brood made it diseased.

Bees Doing Fine.

Bees in this vicinity are doing fine, and I have already made 50 percent increase. The indications are favorable for another exceptionally good honey-year.

LEO E. GATELEY.

Fort Smith, Ark., May 10.

Cold and Backward Spring.

This has been the most backward season I ever saw. One bee-keeper did not take bees out of the cellar until the very last of April. It snowed almost every day the first week in May. We had quite a snowstorm the 1st. The bees are not so strong as when I took them out of the cellar, April 1, 2, and 3. I look for a heavy loss in this section. They have scarcely any brood, not half as much as when I took them from the cellar. The queens are laying, and there are plenty of eggs, but no brood to speak of—too cold for brood-rearing.

GEO. B. HOWE.

Black River, N. Y.. May 8.

Disinfecting Combs.

We are told that to keep combs free from the wax-worms we should use bisulphide of carbon; and once is a plenty. March 20. 1906, I had 29 colonies living. Fine weather, and soft maple and elm came out in blossom, and the bees worked well until the evening. March 31, at sundown, the wind turned northwest and it was cold all through April. When it became warm in May so that bees could fly, I had just 9 colonies living, so I was pretty nearly cleaned out. There was brood in every hive—from 2 to 3 frames. Not any was smaller than a man's hand in size, with 10 to 30 pounds of honey in the hives, so I had a mess to clean up. I set the hives back of the hives with bees. They cleaned them out well, all but one hive. They cut the combs badly, but did not spoil them.

After the bees had cleaned up all and left, I soon found that the wax-worms began to work. So I got one pound of bisulphide of carbon, then cut a lath as long as the hive, 16 inches, wrapped newspaper around the lath and nailed at each end. This closed the front tight. Then I took 2 pieces of paper that covered the top well. Then I turned into the hive 2 tablespoonfuls of bisulphide of carbon and put the papers and then the boney-board on. I used a brick for a weight. I found it to be necessary to do this once in a week or 10 days, or the worms would get the start of the bee-keeper. They spoiled 2 sets of combs for me after using the first time. Since then I have kept the combs free from the worms, for 2 years.

I have 23 hives with full sets of combs, and it costs me my time and 2 pounds of bisulphate of carbon, and the combs are good. "Once a week, and keep dry."

E. TUCKER.

Bergen, N. Y., May 12.

Expects Honey Later.

Bees have got down to business here at last. My bees are swarming, and swarms are being caught in the woods every day. Almost all are being put into box-hives. I can't get the farmer in the bee-business interested in the movable-frame hive. The poplar is in bloom, and we will have some flowers from this time on. I am looking for some honey after a while.

R. V. PERRY.

Greenfield, Tenn., May 13.

Drinking Milk with Honey.

In the April issue I notice "Honey gives him stomach-ache." I hesitate to correct Dr. Miller's answer, but as it will aid the consumption of honey, perhaps he will forgive me. Advise them to drink milk when they eat honey, and it will stop fermentation. It seems the casein neutralizes the acid produced in fermentation just as cheese does in pastry, and in cases where fermentation becomes chronic the albumen of eggs. This condition is often found where people are troubled with uric acid. Then if milk or albumen do not accomplish the trick, take ½ teaspoonful of bicarbonate of soda and ¼ teaspoonful of bismuth subnitrate from ½ to 2 hours after eating honey. Fermentation, if long continued and unchecked, will produce ulceration of the stomach and perhaps cancer.

Valhalla, N. Y. A. RICHTER.

Caucasian Bees.

On page 151, F. W. Blakely refers to an Iowa writer on page 313, for October, 1908, in which he draws attention to what I said in regard to Caucasian bees as not being desirable to keep. I wish to say that I am not accustomed to write for the public, and that if I failed to make myself understood, he must excuse me. The queen referred to was an Italian I introduced to supersede a Caucasian queen. In 1907 I sent for 3 Caucasian queens, and got them safely introduced. They did fairly well, and came through the winter all right; they received the same treatment my other bees did; they did fairly well, but my Italians and hybrids did better. I find that they are much given to drone-rearing. I hived one swarm on full sheets of foundation and in due time they had a fine lot of combs filled with brood and honey; but what took me by surprise was, that I found one comb near the center of the hive about one-third full of drone-brood in worker-cells, and the drones seemed to be nearly as large as those reared in drone-cells. I find also that they will rear a large number of queens when they swarm. Most of the combs from which the swarm came had from 2 to a dozen or more queen-cells on each, and I am led to believe that the queens are not quite as large as queens from other bees. At least, I found that a larger percentage would go through queen-excluding zinc. Those bees would carry in no more propolis than other bees during the summer, but it was only at the close of the season that they would plug up the entrance.

In color they are very much like black bees, but of a more greyish appearance, particularly when young. When out in the field, I could not tell them from black bees with any certainty. I find them very gentle at almost any time when other bees are inclined to be cross. My bees are mostly what are called the golden Italians, not the long-tongued red clover bees, yet I find that bees will work on red clover for a day or two every year if the conditions are right—not alone the Italians, but hybrids and blacks as well.

Now, Mr. Blakely, if you find that I have made further misrepresentations, please point them out, and I will try to correct them.

FRED BECHLY.

Searsboro. Iowa, April 10.

Good Prospect for Honey Crop.

The outlook for a good crop of honey is good here at this time. My bees wintered fine. I had not a single loss out of 26 colonies; all came through in fine shape. but one, which is, I believe, queenless. I winter them on the summer stands in single-walled hives, and never lose a colony, except from carelessly letting the entrance get sealed up with ice when it sleets. A 3-frame nucleus ordered last season, has done well. I have 2 full colonies now ready to swarm, and got about 30 pounds of fine comb honey from them last fall. I have had no swarm, but am expecting it every day, as the bees are lying out some.

Fruit-bloom was good. Everything was full, and bees made good use of it. Dandelion followed, and now wild cherry and some little clover are in bloom. The prospect for a good white clover honey-flow is excellent, all the talk to the contrary notwithstanding. I sold my last year's crop here at home in the local market, for 12½ cents a pound. I could have gotten 15 cents if I had held onto it a little longer. All together the prospect "looks good" to us, and we hope for a good year for all engaged in the business, for business or pleasure. I am in it for both, and get both out of it. There are but few bee-keepers here, and very few indeed who understand the business and run it on business principles.

H. S. CARROLL.

Lentner, Mo., May 24.

Flouring Queens Before Introducing.

On May 3 I received 3 tested queens which I wanted to introduce. Having just read in Gleanings that queens could be introduced by sprinkling the queen as well as the other bees with flour after placing the queen on the frame I thought I would try to experiment.

I went to the apiary and selected a colony whose queen had been winter-killed. I took out the frame, sprinkled the queen with flour while in her cage together with her attendants, opened the door of the cage and let her crawl on the frame. As soon as she was on the frame I sprinkled all the bees on the frame. I also took out a few of the other frames and sprinkled them. To my surprise both the queen and her attendants walked unmolested. I put the frame back, and on the 12th I examined the hive again and found the queen all right and laying.

Encouraged with my success I tried to introduce another queen to another colony that had been given brood a few days before, but it was not a success. The queen had no sooner come on the frame than the bees went after her, and before I could rescue her she

was crippled. Will some one who has tried this, inform me if the fact that the bees were given brood and were rearing a queen would make the difference, or was my first attempt just "happy circumstance?"

I trust that this flour method will be a success, for if it is it will solve to a certain extent an easy way of introducing. I should be glad to hear through the columns of the American Bee Journal of any one who has tried it, and with what success.

A. F. NELSON.

Benson, Minn., May 15.

Peirce Service AND Root Quality Always Win

Here are two instances out of several thousand.

GRAFTON, W. VA., April 29, 1909.

Mr. E. W. Peirce:

The bee-supplies are at hand. I am more than pleased with them. I would rather have the frames you sent me than the kind I meant to order, because the foundation is more easily put in them. FRED BAILEY.

MARTINSBURG, O., March 26.

Mr. E. W. Peirce:

The goods at hand; everything in good condition. All parts fit nicely together. I like to order goods from you, Mr. Peirce, because you are so prompt in making shipment. PAUL GILMOR.

Join the happy company of which Messrs. Bailey and Gilmor are members by sending your next order to

EDMUND W. PEIRCE,

136 W. Main Street, Zanesville, Ohio

Catalog free.

When ordering mention Am. Bee Journal and get a discount.

$2 **A DAY** for spare time. Business light, pleasant, easily learned. No canvassing. Lovely samples and instructions 10 cts. **Lew. Davis Co., Box 192, Webster Groves, Mo.**

Please mention Am. Bee Journal when writing

GIANT RADISH *from* JAPAN

Weighs Ten To Thirty Pounds

Cut from Actual Photograph of Radish.

Grows 1½ Feet Long—Seeds FREE to Our Readers

What do you think of a variety of radish that weighs thirty pounds, which is often a foot and a half long and more than eight inches through, which is as tender and sweet during the hottest July weather as the earliest spring radishes, and which, notwithstanding its immense size, never becomes hot or pithy; which can be eaten raw like an apple, can be cooked like turnips, and when pulled late in fall will keep late into winter as sweet and crisp as when pulled. Add to this the fact that the tops, which grow to be two to three feet long, make fine "greens," and you have a pretty good description of the giant radish, Sakurajima, a recent introduction from Japan.

The Fruit-Grower has secured practically all the seeds of this splendid radish in America, and I want you to have a package for planting this season. There is plenty of time to plant, for this is a hot-weather radish, and must be planted late.

This splendid new radish was first called to my attention by one of our readers on Long Island. He has grown Sakurajima radish for two seasons, and says that last year they averaged fifteen pounds in weight and every radish was tender and sweet, and did not get hot at any time.

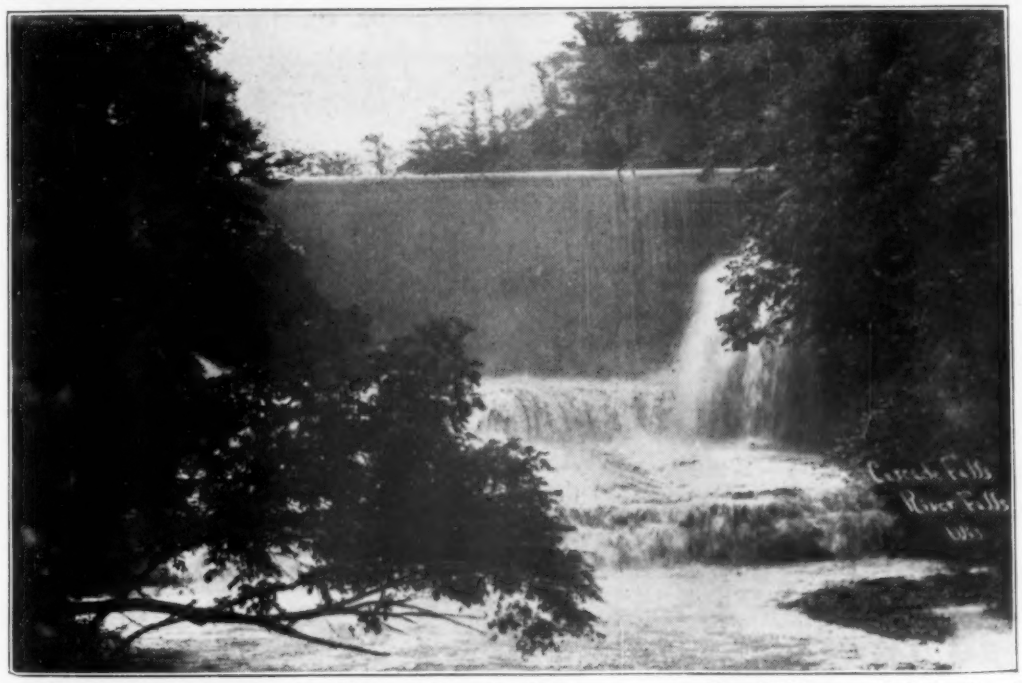
Hon. W. J. Bryan, seeing our advertisement, writes: "You are the man I am looking for. **I saw the Giant Radishes in Japan, and want some seed.** I saw radishes 15 to 18 inches long, and the flavor is good. I have been intending to send to Japan for seed. Now, I will buy them of you, or subscribe for your paper—in fact, you can trade with me on your own terms."

These Seeds are Free with a Trial Subscription to The Fruit-Grower

Here is the way to get the seeds: Send me 25 cents for a six months' trial subscription to **The Fruit-Grower,** and a package of the seeds will be sent you absolutely free. This trial offer gives you **The Fruit-Grower** six months at **Half Rate.** Regular rate $1.00 a year.

The Fruit-Grower is the leading fruit paper of America; it is devoted solely to horticulture, and has 70,000 readers who swear by it; it is clean and up-to-date—no whisky or medicine advertisements. Ask the editor of this paper about **The Fruit-Grower.** He knows the paper well, and knows I could not afford to make an offer of this kind unless I knew that both **The Fruit-Grower** and the Sakurajima radish will make good. Send 25c. coin or stamps, at my risk, for a six months' trial subscription, and seeds will be sent by return mail FREE. **Write Today.**

JAMES M. IRVINE, Editor The Fruit-Grower, Box S, St. Joseph, Mo.



Who Pays the Coal Bills?

Some manufacturers of Bee-Keepers' Supplies burn *New Mill Dam with Fifty Feet Water Power.*

A Car-load of Coal a Day

The cost of the coal must be added to the cost of the material and the labor and all other expenses, and the **Consumer pays the Bill.**

Who makes your bee-keepers' supplies? It will pay you to look into this matter. You have long been wondering why your Supplies cost so much. Better investigate.

The above is a photograph of the Kinnickinnich at the site of the Power plant of the Bee-Supply factory of W. H. Putnam, of River Falls, Wisconsin. Send 10 cents for *"Bee-Talk,"* and experience an agreeable surprise in prices.

W. H. Putnam, River Falls, Wis.

American Bee Journal

Langstroth on the Honey-Bee

Revised by Dadant—Latest Edition

This is one of the standard books on bee-culture, and ought to be in the library of every bee-keeper. It is bound substantially in cloth and contains nearly 600 pages, being revised by that large, practical bee-keeper, so well-known to all the readers of the American Bee Journal—Mr. C. P. Dadant. Each subject is clearly and thoroughly explained, so that by following the instructions of this book one cannot fail to be wonderfully helped on the way to success with bees.

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37 Years Experience, breed 3-band Italians only.

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	1	6	12	1	6	12
Untested	$1.00	$5.00	$ 9.00	$ .75	$ 4.00	$ 7.50
Select Untested	1.25	6.50	12.00	1.00	5.00	9.00
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Select Tested	2.50	13.50	25.00	2.00	10.00	18.00

Breeders $4.00. Add twenty percent for queens to be exported.

Nuclei, without queens: 1-frame, $2.50; 2-frame, $3.50; 3-frame, $4.50. 1 Full Colony, 8-frame, $9.00.

Select the queen wanted and add to the above prices.

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Our five yards Winter on Summer stands with practically no loss.

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Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuclei	3 50	20 00	35 00
Full colonies on eight frames.	6 00	30 00	

Add the price of whatever queen is wanted with nuclei or colonies. Queens ready April 1st, bees May 10th. Safe arrival and pure mating guaranteed. Circular and testimonials free.

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Untested queens	1,	$ 75	6, $ 4.20
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1-frame nucleus with untested q'n.	1,	1.75	6, 10.20
2-frame nucleus with untested q'n.	1,	2.25	6, 13.20
1-frame nucleus with tested queen.	1,	2.00	6, 11.70
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Golden—Red Clover—Italians—and Gray Carniolans

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Tested	1.00	5.50	10.00

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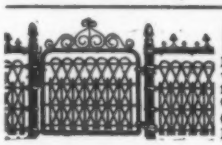

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Circular free. 5Atf

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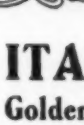

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Select untested.....	$1.00	½ doz.	$5.00	1 doz.	$ 9.50
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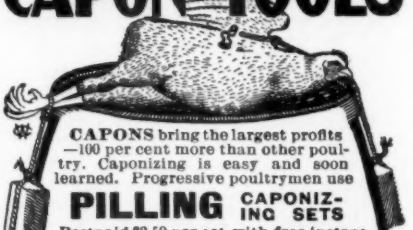

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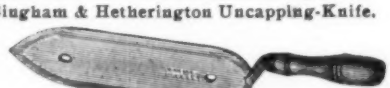

Patented, May 20, 1879. **BEST ON EARTH.**

American Bee Journal

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The A. I. Root Company, 42-60 Institute Place

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We are now fully moved, located, and well stocked with a FULL LINE of supplies. We have the best shipping facilities, and with plenty of help we promise to get goods to you promptly. There are only two reasons why we might fail; viz., the neglect of some transportation company to give its usual good service, and our inability to turn out stock fast enough to care for your orders. We are promised a large car-load from our factory every TEN days, so you see we expect to take good care of your orders. If you haven't our new catalog let us send you one.

Remember our new location, four blocks north of our former place.

The A. I. Root Co., : : Chicago, Illinois

42-60 Institute Place **R. W. Boyden, Resident Manager.** **Jeffrey Building**

Take Elevator to Sixth Floor. Telephone 1484 North.

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Distributor of Lewis and Root Bee-Supplies. We are now prepared to furnish promptly a full line of Supplies and Berry Boxes. Choice new stock just from factory. Beeswax wanted. Send for Catalog.

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BEE-SUPPLIES. 40-page catalog free. Brimful of the latest make of hives, etc. Our supplies will please you in every way. Prices are right. We can make prompt shipments as we carry a full line of A. I. Root Co.'s supplies in stock. Don't fail to write us if you are in need of supplies. 8Atf

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Crown Bone Cutter

FEED your hens cut green bone and get more eggs. With a **Crown Bone Cutter** you can cut up all scrap bones easily and quickly, and without any trouble, and have cut bone fresh every day for your poultry. Send at once for free catalogue.

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Best Made-Lowest in Price

Italian Bees for Sale

1 colony, $5; 2 for $9; 5 for $20. Queens—Untested, 75c each; 6 for $4; Tested, $1 each; 6 for $5. Will put swarms into any style hive to suit purchaser. 5Atf

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MARSHFIELD BEE-GOODS

FRIEND BEE-KEEPER—We are prepared to fill your orders for **Sections.** A large stock on hand. Also a **Full Line of Bee-Supplies. We make prompt shipments.**

MARSHFIELD MFG. CO., Marshfield, Wis.

IOWA—J. W. Bittenbender, Knoxville, Gregory & Son, Ottumwa.
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NEBRASKA—Collier Bee-Supply Co., Fairbury.
CANADA—N. H. Smith, Tilbury, Ont.
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MINNESOTA—Northwestern Bee-Supply Co., Harmony.
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Westwood Red-Clover Queens

A New York customer writes, "I have tried queens from a good many breeders, but yours are far ahead of them all." 4A4t

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FOR SALE—It will pay to get our special proposition. **A. G. WOODMAN CO., Grand Rapids, Mich.**

American Bee Journal

"FALCON" QUEENS

Three-Band
Golden Italians
Caucasians
Carniolans

	1	6	12
Untested	$1.00	$5.50	$10.00
Select Untested	1.25	6.75	12.75

Tested, $1.50; Select Tested, $2.00

We have in charge of this department MR. LESLIE MARTIN, formerly queen-breeder in the Apiary of the U. S. Dept. of Agriculture, Washington, D. C.

Send for our free catolog of "Falcon" Bee-Keepers' Supplies.

W.T. FALCONER MFG. CO.
Jamestown, N. Y.

Headquarters for Bee-Supplies

ROOT'S GOODS

Please Rush My Order

We can, as we have several carloads of hives, sections, foundation and all other bee-supplies.

Give Us A Trial

Shipments are made the same day order is received.

We can supply Red Clover and Golden Yellow Queens.

At Root's Factory Prices

C. H. W. WEBER CINCINNATI ...OHIO...

Office and Salesrooms, 2146-48 Central Ave. Warehouses, Freeman and Central Aves.

Honey and Beeswax

CHICAGO, June 1.—The market is dull, few sales of comb honey being made, with best grades ranging from 11 to 12c; off grades from 1 to 3c less, with occasional sales of small quantities at 12 1-2 to 13c for the fancy. Extracted, white, 7 to 8c—the latter price for basswood; ambers 6 to 7c. Beeswax, 30c. R. A. BURNETT & CO.

KANSAS CITY, MO., May 24.—The condition of the honey market is about the same as our last report, except the extracted. We quote: No. 1 white comb, 24 sections, $2.50 to $2.60; No. 2 white and amber, $2.25; white extracted, per pound, 6 to 6 1-2c; amber extracted, 6c. Beeswax, 28c.
C. C. CLEMONS PROD. CO.

ZANESVILLE, OHIO, May 26.—While there is some demand for honey, on the whole it is moving rather slowly. There are still a few offerings of last season's crop, and it would seem that the demand is hardly equal to the supply, save, perhaps, on extra-fine quality. For strictly No. 1 to fancy white-clover comb (the only grades which sell well here), the jobbing trade would pay 12 1-2 to 13 1-2c. The wholesale market is about as last reported; practically no calls for extracted at the present time. I offer for good clean beeswax 30c cash or 32c in exchange for bee-supplies.
EDMUND W. PEIRCE.

TOLEDO, May 26.—There is practically no demand for comb honey. We are making sales in a small way at 14 1-2 to 15c, with no demand for lower grades. White clover in barrels or cans is worth 7 1-2 to 8c in a retail way. Amber, extracted, California, 6 1-2 to 7c. Beeswax 28c cash and 30c in trade.
THE GRIGGS BROS. CO.

INDIANAPOLIS, May 25.—There is a very favorable demand for best grades of both comb and extracted honey; and while jobbing houses are fairly well stocked, very little honey is now being offered by producers. Jobbers are making sales at the following prices: Fancy white comb, 14 to 15c; No. 1 white, 12c. White clover extracted, in 5-gallon cans, 8 1-2 to 9c. Amber honey is in poor demand, and prices not established. Bee-keepers are being paid 29 to 31c for beeswax. WALTER S. POUDER.

CINCINNATI, May 26.—The market on fancy comb honey is cleaned up. There is a light demand for fancy white goods. There is an overstock of off-grade comb honey, which will not sell at any price. The market on extracted honey is fair, prices for amber ranging from 6 to 6 1-2c in barrels; white sage at 9c. Beeswax slow at 33c.
C. H. W. WEBER & CO.

PHILADELPHIA, May 26.—There has been very little trade in comb or extracted honey within the past week. Some few sales of comb honey. Fancy at 15 to 16c; No. 1 at 13 to 14c. Extracted honey, some fancy white in 60-lb. cans at 7 to 8c; light amber, at 6 to 7c, according to quantity.
WM. A. SELSER.

NEW YORK, May 26.—We have nothing new to report. In regard to comb honey there is very little demand for No. 1 and fancy white, and no demand for the other grades. Extracted honey is in better demand, and the receipts, however, are sufficient to meet the demand. We quote: California honey 8 to 8 1-2c; light amber, 7 to 7 1-2c; amber, 6 to 6 1-2c. The new crop of Southern and West India honey at 58 to 75c per gallon, according to quality. Beeswax firm at 30c. HILDRETH & SEGELKEN.

BOSTON, May 26.—We quote: Fancy white comb honey, 15c; No. 1, 14c; white extracted, 8 1-2c; light amber, 7 1-2c. Beeswax, 30c.
BLAKE, LEE CO.

LOS ANGELES, May 29.—Water-white extracted, 5 1-2c; white, 5c; light amber, 4 1-2c. Prospects not very bright now, too much cloudy weather. H. J. MERCER.

DENVER, May 28.—Local trade on both comb and extracted honey has of late been fairly good for this time of year, but as stocks on this market are heavy, prices have been lowered in order to clean up. We quote: No. 1 white, per case of 24 sections, $3.00; No. 1 light amber, $2.75; No. 2, $2.50. No demand for candied comb. Best white extracted honey, 8½ to 9c; light amber, 7½ to 8½c. We pay 26c for clean yellow beeswax delivered here.
THE COLO. HONEY PRODUCERS' ASS'N.

HONEY FOR SALE

We are producers and shippers of extracted alfalfa honey, in car lots, put up in 5-gal. cans, two cans to the case. Every can is inspected before leaving our warehouse, and all shipments are guaranteed equal to sample in quality.

Sample and price on application. 5A3t

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El Centro, California

We will Buy and Sell

HONEY

of the different grades and kinds. If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for

Beeswax

at highest market prices.

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265 & 267 Greenwich Street
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HONEY AND BEESWAX

When consigning, buying, or selling, consult

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199 South Water St. Chicago, Ill

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It Excels....

What's in a Name?

That depends on whose name it is. It depends on what the name represents. It depends on the quality of the goods the name represents. It is **not** the name that makes DADANT'S FOUNDATION so well known and well liked, but it is the

Quality of the Goods

That's what backs up the name, and the **quality** is backed by 30 years of successful experience in foundation making.

EVERY INCH of DADANT'S FOUNDATION is equal to the best inch we can make. Do not fail to insist on Dadant's make when you order your foundation. Accept no substitute even though the dealer claims that his foundation is made by the same process.

It is the PURIFYING PROCESS that counts. Our method of purifying has been unequaled for years. This method leaves every essential in the pure beeswax, and our Foundation does not have the odor of wax cleansed with acids.

That is why several large honey-producers who have tested our foundation side by side with other makes, have found ours to be the best, and the best liked by the bees.

BEESWAX

Do not sell your beeswax until you get our quotations. We have received up to April 1st, over 80,000 pounds of beeswax for our 1909 trade. We will need over 80,000 pounds more before January 1, 1910. Drop us a card and get our prices.

Agents for **Dadant's Foundation** in every part of the **United States.**

DADANT & SONS, : : Hamilton, Illinois

DADANT'S FOUNDATION

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500,000 Sections at $1.50 Per Crate

Manufacturer's stock just purchased by us must be moved at once in order to make room for another tenant. We offer for sale this job lot of one-piece Sections at this bargain price so as to avoid the expense of carting and storing these goods in our warehouses.

Packed Ready for Immediate Shipment.

These Sections are packed 500 to the crate and are ready for immediate shipment. The lot consists of a mixed assortment in the following sizes of **Off-Grade Sections**—some a little off color and some not quite smooth enough to qualify for No. 1 and No. 2 grades, but good enough for ordinary use:

$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ inches . . Beeway	$4 \times 5 \times 1\frac{3}{8}$ inches . . . . Plain
$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ inches . . . Plain	$3\frac{5}{8} \times 5 \times 1\frac{1}{2}$ inches . . . Plain

Bee-keepers should take advantage of this exceptional opportunity to secure these Sections at this bargain price before the supply is exhausted. Manufacturers with but few exceptions are way behind on orders. A supply of these Sections on hand will be worth many times their cost in case of emergencies when you are in need of Sections and cannot get them, as they will come in handy to fill in with.

Remember, 500 Sections for $1.50 Per Crate

Orders will be filled for any quantity desired in the same order as received until the lot is disposed of. All goods shipped subject to approval, as we guarantee satisfaction to our clients at all times in every business transaction.

Don't Delay It. MAIL THAT ORDER TO-DAY. Don't Delay It.

Minnesota Bee-Supply Company, 252 Nicollet Island, MINNEAPOLIS, MINN.